A CRITICAL REVIEW OF MANAGEMENT INFORMATION SYSTEM (MIS) IN HEALTH CARE INSTITUTIONS

SUBMITTED
IN PARTIAL FULFILMENT OF THE
FINAL EXAMINATION OF POST GRADUATE
DIPLOMA IN HEALTH CARE ADMINISTRATION

BY

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ST. JOHN'S MEDICAL COLLEGE HOSPITAL
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JULY 31, 1988

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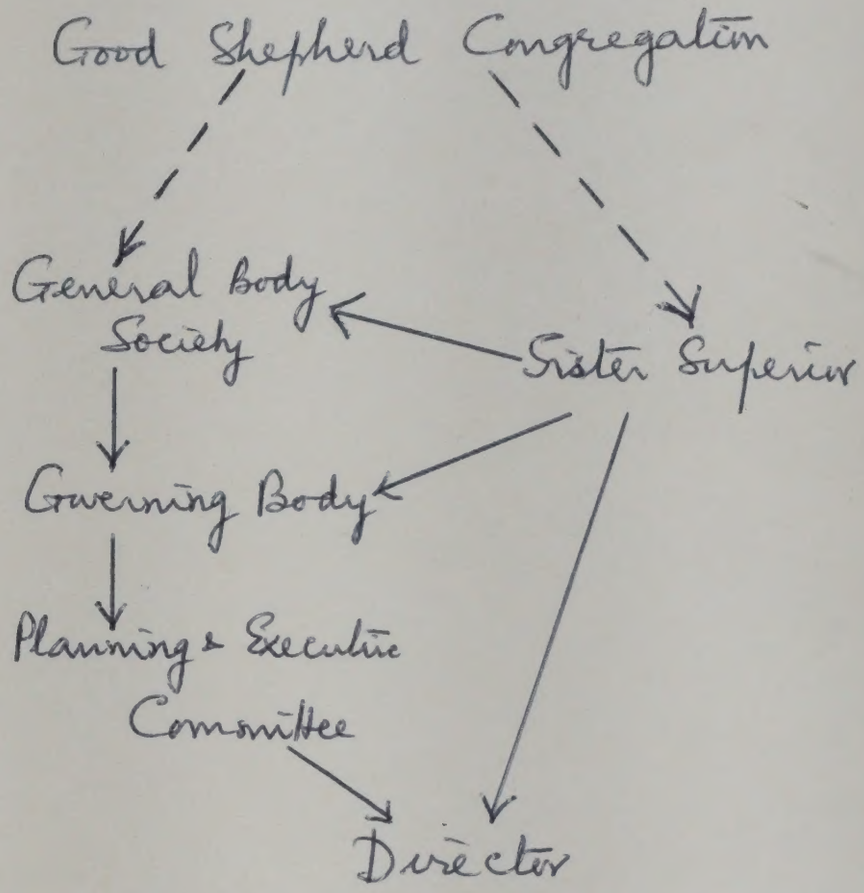
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PREFACE

Management Information System has developed into a Science during the present days. Still it has not attained the momentum and importance it deserves in health care institutions. The writing of a paper, "A Critical Review of Management Information System In Health Care Institutions" is undertaken realizing the needs of such a system to be well implemented, and also having considered the manifold drawbacks faced due to the absence of a proper information system. The writing of this paper would not have been possible, had it not been for the sustained and valuable guidance of our experienced and well versed coordinator of the Health Care Administration Courses, Mr. A.K. ROY, M.B.A., to whom I am extremely grateful. My sincere thanks goes also to Mr. As. Mohamed, MSC - Asst. Professor (Statistics), St. John's Medical College, for the guidance he gave in research technology. To Dr. Mario C.de Souza, Deputy Hospital Administrator, St. John's Medical College Hospital, I am grateful for the help he has rendered, especially for arranging to meet the managers of various hospitals. My heartfelt thanks also goes to the Top Administrators and Departmental Heads of various voluntary hospitals for their kind cooperation and availability in answering the questionnaire. Also I am thankful to the person responsible for typing and getting this paper in this present form. My ardent desire is that this paper may give us an eye opener

to managers of various levels, to give due importance to Information System in Hospital as a help to achieve the goals of the institution.

Sr. Teresa.

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CHAPTER - I

INTRODUCTION TO MANAGEMENT INFORMATION SYSTEM

INTRODUCTION

DEFINITION

SITUATION IN VOLUNTARY INSTITUTIONS

GENERAL CONCEPTS

REVIEW OF LITERATURE

HYPOTHESIS

METHODOLOGY

INTRODUCTION

"Communication and information are the life blood of an organization. Neither planning nor decision making, nor any other managerial process, is possible without them. Communication may be viewed as the process of exchange of information; it provides the means of contact between organizational members and organizational decision centres. One of the various ways in which an organization can be analysed is as a communication network. The design of an efficient and effective communication network is a fundamental requirement for managerial decision making. The purpose of the network is to facilitate the flow of information among different decision centres of the organization.

Modern organizations are inundated with data and information that are either generated by internal transactions (e.g. patient billing, drug sale, service - income, purchasing and paying wages and salaries) or gathered from outside sources (eg. forecasts and projections about G.N.P., inflation employment, urbanization, population grouth, import, export tax law and government regulations). Such data and information are needed for making managerial decisions. However, there is a major problem in arranging such an exchange: Information over load. But the amount and variety of information have been growing at an exponential rate; society is confronted with information.explosion. Managers must learn to cope with this phenomenon; they must manage information, not be buried by an avalanche of irrelevent data. That is, a system or structure must be developed to collect, organize, process, and disseminate the right type of information at the right time to the right person. Awareness of this need was a major force in the development of the management infombation system". (1)

Information can be defined as potential knowledge.

"Information itself is some tangible or intangible entity which reduces our uncertainty about a state or event". (2)

Information is valuable because it has capacity to increase knowledge, in actuality it may or may not. For an effective functioning of an organization information between decision making centres is essential. It is based on the availability of the right type and amount of information at the right time. Information has to be gathered, processed,

and transmitted to appropriate points in the organization. Sources that generate data must be connected, directly or indirectly to the users. Information has to meet the requirement in decision making process. To be effective it has to be timely, relevant, valid, and properly processed.

MIS is a problem facing all hospitals, especially those run by voluntary agencies. All people in the institution are affected, especially managers as they have to deal with planning, decision making, etc. Managers need information on various levels to manage the organization well. It is an area which has not received the attention it deserves. Hence, my choice of this topic, to venture into various aspects of MIS as it is existing today, so that we may take an initiative to change the existing conditions, and develop a better MIS.

I have divided this paper into four chapters. The first part of the first chapter introduces the topic, followed by definition. A picture of MIS in voluntary institutions is portrayed. Then various general concepts are dealt with, with special emphasis on problems in MIS. A review of literature is presented, followed by the hypothesis based on which the paper is compiled. Then the methodology I have followed is explained.

Chapter II deals with MIS in hospitals under various headings like Information Versus Data, MIS and Quality Assurance, Information Needs of Hospital Managers, Values of Information, Designing the MIS, Criteria for Good MIS,

Functions of MIS, Informing the Staff, Major Barriers to Effective MIS, and Recommendations.

Chapter III explains the Organization Structure, Communication, and Record Retention Schedule.

Chapter IV contains the analytical part of MIS as visualised in Hospitals A, B & C, with a concluding finding.

Then the conclusion, reference, and bibliography are presented. Lastly it ends with an appendix containing the questionnaire used for the study.

DEFINITION

J.S. Chandan defines MIS as, "A management information system basically is a set of procedures that are systematic and inter-related for gathering all pertinent data, processing this data into a presentable form of information, so that the management can take necessary actions based upon this information". (3)

MIS is defined by Lovey and Loombas, "An MIS is defined as any system designed to economically collect, carefully organize, properly process and selectively transmit data to designated points in the organization. MISs derive their name from their focus on the flow of information required for management decisions. The purpose of any MIS is to convert the basic data into useful information that is conveniently accessible to managers. The term system implies that the entire information network is interconnected, based on goals and needs ofoperating managers.

A management or health care information system can, produce daily profiles of customers (eg. patients) , finances (eg. cash flow) and production level (eg. services rendered like operations performed). In medical information system the emphasis is on medical data like patient history, symptoms investigations, therapy, outcome, etc. Many systems make extensive use of quantitative models". (4)

SITUATION IN VOLUNTARY HOSPITALS

The Concept of management is as old as the human race

itself. The concept of family itself required some management functions from earliest times. History of Management Information cab be traced back to 5000 B.C. "The ancient Sumerians used written records in assisting governmental operations". (5)

Voluntary institutions were started to fill an immediate need of the people. Many of them started by lone missionary with a few devoted people assisting him/her. Traditionally, voluntary hospitals were for the most part run by dedicated, hard working men and women interested in caring for the sick. They knew very little about management. The management system of voluntary hospitals run parallel to the development of health care organizations. In the initial stage there was the custodial model, with no training in administration. The next was, and is still, in many hospitals, the era of physician administrator. Since the late sixties, the concept of formal training in administration has been gaining increased acceptance in our hospitals.

There was no felt need for any organized information system. Information and communication were easy as the number of people concerned were very few and lived close together, showing the same philosophy and goals, with continuous sharing and discussions together. Gradually hospitals began to expand, technology developed, socio-political-economic status of people changed. Within the hospital itself, specialisation and departmentalisation started; number of services with corresponding number of

personnel multiplied. Oneman administrator could not have a vision or control over the whole functioning, he alone could not pass on the right information to the right people, neither could he get the right information in time to take the right decision. Hence the need for a proper organisational structure with clearly defined allocation of responsibility and authority, resulting in decision making centres. As a result of this, there is a tremendous need for developing a well established MIS to meet this requirement. Also government and foreign agencies and the community at large need to be provided with right information. But the MIS in our institutions is far from being satisfactory. Though it has developed into a science, it is not given due place in our institutions. Our Top Managers do not get the information they want. Even if they get, it may not reach them in time, lacks accuracy, completeness, etc. Guaranteed that all these are adequately met, managers may not make use of the same for decision making. Also managers may not give out the information as to what kind of information is needed at what time and in what shape. Information system at intermediate and lower level suffer from the same drawbacks. Incidents like patient getting wrong treatment, wrong patient send for X-ray or investigations, right patient undergoing different procedures, patients coming to hospitals at wrong timings, important incidents taking place, and concerned people not knowing it, absenteeism of employees, etc,etc. The incidents can be multiplied to any number of times.

The strikes and untoward incidents are also connected to lack of information or wrong information. Thus we see that as far as MIS is concerned, the standard in our hospitals are still poor, and many of us remain in the dark as far as information is concerned, even in this age of computerisation.

To face the crude facts, so far not much experimentation has been done in this field of MIS, hence the system lacks any innovation for it to step up to take the place it deserves. Though more and more managers are aware of the need for better information, or suffer the consequence of lack of information, or misinformation, still no one has taken any active step towards implementation. And if at all experimentation and innovation have taken place in one or other isolated sphere, the hard truth is, that it has not disseminated as it should have, nor has it been able to respond to the felt need. Hence my choice of the topic "Management Information system in Health Care Institutions". Information in itself is not an end, but a means to achieve the end, that is, help managers make right decision and planning to achieve set goals.

GENERAL CONCEPTS. (6)

Basic to the idea of controlling and revieuing, or rather, basic to all managerial activities, is the idea of information. If accurate information does not flou in an organization, decision making will be affected; eg. recording of wrong information about a patient, or a grossly wrong information about income and expenditure of the hospital. One of the important tasks of management is to facilitate

the organization of data for information effectively. It can take place by:

a) Condensation (Summarisation)

b) Filteration; and/or

c) Regrouping, Reclassification and rearrangement.

Without a proper information system, the administrator runs the risk of creating disorder and confusion in the organization. But, the presence of a good information system is no guarantee for good administration. Limitations of training, experience and judgement can make the administrator less effective in taking decisions. Managers must have information, understand it, know how to use it and evaluate and control it.

A) THE CHARACTERISTICS OF INFORMATION:- For an information to be helpful it must

a) Reach the relevant person at the right time

b) Reduce his uncertainty for making decisions, and

c) Help the relevant person act on it.

Information helps in decision making and reducing uncertainty. Management is about decreasing disorder and promoting growth with the gift of information.

B) THE QUANTITY OF INFORMATION:- Too much or too little information is not good for managers. Too many reports, too many papers to be signed by the administrator and too many people reporting or wanting to meet one person results in a deluge of information. A centralised, authoritatin

system of management is not the only reason for too much of information. It happens also if the manager does not know how to organize his information requirements. The effective and efficient administrator should decide on the frequency and format of the information he needs. MIS should optimise the time, money, and energy spent on the generation and using of information. Balance between too much and too little information is an inevitable necessity for effective management.

C) TYPES OF MIS:- MIS in hospitals can be developed on administrative data processing, clinical data processing, and medical information systems.

a) Administrative data processing constitutes the performing of routine functions as billing, accounts receivables accounts payable, pay roll, general ledger, census, admission records, laboratory data, inventory of drugs, supplies, and equipment and staff scheduling. (7) The importance and use of this processing will be realised only if these are interpreted and made use of at different decision making centres. The drawback in majority of our hospitals is, we lack acting based on the data, more that a dearth of data, though there is scope for improvement in the same.

b) The clinical data processing system combines routine record keeping functions with some participation in health care process.

c) Routine administrative record keeping, updating of charts, preparing of worksheets for diagnostic departments. (8)

D) INFORMATION FOR FEEDBACK AND CONTROL:- Information is a tool for feedback and for initiating new action. The purpose of feedback information is to evaluate, measure and control. The nature of task and the style of the manager determine the quality and type of feedback information. (9)

E) INFORMATION FLOW, FOLLOWER MATURITY AND TASK BEHAVIOUR:- The flow of information is determined by the leadership style and the maturity of the subordinates. Information system has to supply more detailed information about the subordinate's work progress, if his maturity in following is less. High task behaviour of the leader requires more information.

F) INFORMATION FOR CHANGE AND GROWTH:- Information has to be perceived as a tool for innovation, creative adaptation, change, growth, and development of individuals and organizations. Health care institutions need to design information system which would answer for the management these questions'

a) "Where does the hospital stand in terms of its philosophy and objectives?

b) Have the characteristics of the community changed and where does the institution go from here?" (10)

A systematic and periodic evaluation and audit of hospital functions and goals will give relevant information to these questions. MIS should provide management with three major information services.

a) Determination of Information needs: It should start with deciding the quantum of information needed, the manner, the time and the person who will use the information, and the format in which it is needed.

b) Information gathering and processing: This improves the overall quality of the information. Its five components are:

i) Evaluation: determining how much confidence can be placed in a particular piece of information

ii) Abstraction: involves editing and reducing incoming information to provide only relevant to tasks ones.

iii) Indexing: to provide classification for storage and retrieval purposes.

iv) Dissemination: entails getting the right information to the right manager.

v) Storage of that which has to be stored.

c) Information use: Use depends on quality, form and timeliness. (11)

G) PROBLEMS IN MIS:

"We live in a time when information is valued more highly than action; the collection compilation and analysis of data seem to have become ends in themselves". (12)

This is so evident in health services. Data are stored on a huge scale and this is often seen as a status symbol. The resulting problems can be expressed in what is known as "Finagle's Law".

"The information you have is not what you want;

The information you want is not what you need;

The information you need is not what you can get;
The information you can get cost more than you want
to pay! " (13)

The purpose of health management information system is to match resources to needs or demands, to ensure efficiency in the delivery of services and to plan and implement priorities. MIS should reflect and correspond to the hierarchical decision framework in the health care system. At lower level, decision making should be programmed to ensure the quality and appropriateness of the health care. At the intermediate level, MIS serves functions of service monitoring, resource allocation, and training needs. The top level needs, only limited amount of data, needed for management control, efficiency and resource implication. (14)

Information is a critical ingredient in any organization. It provides the basis for decision making, it links various parts of the organization. Since different types of decisions are made in different parts of an organization, the information requirement varies from part to part. Information must be relevant and appropriate, reliable and timely. Top Managers need information for policy matters and overall strategies, to set priorities and general targets, to consider technology options, to establish standards, to obtain and allocate resources. Health care organization requires information on prevailing or emerging health and health related problems, community and environmental profiles, resource availability and distribution, patterns of usage or response, coverage

effectiveness and efficiency. Policy guidelines and strategies developed by the organization provide framework for implementation and operational activities, while feed back is the basis for monitoring and evaluation. (15)

a) "Most organisations have grown in size and complexity. this results in management being removed from the scene of the operations and hence must rely on the information provided to them by the line supervisor about any operational problems needing attention. The dynamics of the environment further adds to the complexity of organizational operation". (16)

Information has to be processed according to economic; technological, social, and political - legal changes.

b) The second problem is the need to control management's decisions. More and more, the complex organizations are decentralising their departments, so more information is needed about operations of the unit mahager. The performance of all departments must be taken closely monitored and steps must be taken if performance is below expectations. MIS has to be effectively used for measuring performance and bringing about any necessary changes in accordance with the organizational goals and plans. (17)

c) A decision is as good as the information it is based upon. Another problem is the belief that more information is better for effective decision. This is a fallacy since the information to be processed should be relevant and not more. Simply more information will overburden the manager as he will not be able to absorb and then sort out all data. Manager may not know what information he wants, hence he may ask for all available information. Hence the need to design

a system. (18)

d) Lack of managerial involvement is yet another problem. MIS to be successful, it should have top manager's support. MIS should be used in an optimum manner in order to maxus save time and efforts. (19)

e) Failure of proper communication: More communication need not necessarily end in better performance, but relevant, current information. There should be adequate, timely flow of upward, downward, and horizontal flow of communication. An organizational chart with clearly defined delegation of authority and accountability with a properly linked network of communication is a must.

f) There is a tendency to regard an organization as a collection of independent divisions and departments. But costs - budgets and performance cannot be isolated from the total organization. For integration of this a well established MIS is needed.

Defects and weaknesses are many in MIS as it exists. now. The data collected are not relevant or appropriate at times. Considerable delay is there in collecting or analysing data; some data are not processed. Delay leads to the taking of decisions; unused data represent a waste of valuable resource. Some data are aggregated, hiding important deficiencies, and weakness. Some other data are given in the raw state, unrelated to any base, do not give a trend, performance, coverage, effectiveness or efficiency. Over

ceeding of information also is not uncommon. Potential informations are not used by managers. Managers do not know the significance of information, how to use it, even when relevant and appropriate. An information system, however well planned or developed, cannot by itself produce their result.

Information is a powerful tool for planning, monitoring and control. It costs money. Vast amounts of unnecessary information in health services is collected and not made use. Selectivity, relevance and usefulness are not thought of. Information is often not available in time. Then, it is possible to take corrective action only if administrators get information in time. Inert and delayed information are another drawback. Outdated system also are not effective. According to situation change, informational needs change, but this need is not met. More talk is there on information based planning than in actual practice. Person collecting data is not explained about the utility of data, eg. M.R.D. prepares data according to a book pattern, not according to the specific need of the organization, management or departments.

It is an undeniable fact that information is lacking at all managerial levels. When any data based planning is required, absence of information in the form of data, that is reliable and accurate crops up as the first problem. When the first Prime Minister of India conceived the idea of five year planning, the implementation part was faced with absence of any data like demographic, socio-economic, etc. At the

State level too there is no established MIS to guide decision taking. Coming to the history of hospitals, the picture there is even gloomier. Managers at all levels feel they do not get enough information. Also there are some who admit that they do not give out enough information. At every conference, seminars, workshops, etc., if data based planning is raised, all complain that they do not get enough information. There are also managers who feel that establishing a good MIS is a to their managerial privacy. On the contrary, there are others who feel they do not need much information, relying more on traditions and customs accepted for years together. So, it is an accepted fact that MIS is a problem area in our institutions.

REVIEW OF LITERATURE

Literature in MIS is also as undeveloped as MIS itself, especially in the Indian Context. The little literature available is more in the management and administrative books of foreign origin. Of the literature I have reviewed:

Samuel Levey, N. Paul Loomba talk in some detail about hospital information system (HIS) in connection with communication, the different aspects of HIS, criteria for good HIS, and the modern trend and need for computerisation in the field.

Khorshed D.P. Madon and Homai McDowell talk about managerial need for MIS; types of reports to be kept, and records management in business section.

James A.F. Stones/Charles Wankle give a detailed explanation about importance of information for planning,

decision making, control, and on computerised MIS.

Howard S. Rouland and Beatrice L. Rouland talk at length about the implementation of computerised MIS in hospitals, with more emphasis on patient management.

Srinivasan's (ed) Management Process in Health Care gives information for better management in health care institutions with greater detail on information processing in a M.H.O.

Sr. Carol Huss in her dissertation talks about establishing the information - decision system to improve communications, giving clarity to her ideas through the communication loops representing different decision making centres.

J.S. Chandan develops the designing of MIS, developing of effective MIS, failures and mistakes of MIS in one book, and in another book develops the theme still further by discussing computer capacity in MIS.

Louis J. DPit gives a detailed and interesting article on people centred health care information system from Primary health level to hospital level, with different aspects, including computerisation.

Dr. Sheela Datt in her article "Application of Computer in Hospitals" describes the various areas of patient care in which computerisation can be done.

Geoffrey develops information system in hospitals with particular emphasis on information to be given to the staff

for better and purposeful functioning.

HYPOTHESIS

Various disciplines in management are taking shape only of late. Just as any other managerial discipline has not developed, not is given its due place, MIS too is in its infancy, and a lot of attention need to be given to it, realizing the role it has to play in all decision making process. Only very little literature is available about MIS on Indian Situation. It remains a field still to be investigated, and due importance to be given. By and large all our institutions suffer from the impact of lack of information, which in turn affects all managerial activities. In all health care institutions, especially in voluntary ones, MIS has not been given the place it deserves, the MIS as it functions today is far from being satisfactory.

METHODOLOGY

The overall methodology is a questionnaire based analysis of the existing system of practice of MIS in three voluntary hospitals. The questionnaire is divided into two parts, one to the top administrator, and the other to the departpental heads.

In the questionnaire to the top administrator, the first part deals with the information received and given out by the administrator as perceived by him/her. The second part deals with a comparative check of the informations received and given out by the administrator, against an ideal information system;

as set in the questionnaire, on a daily, weekly, monthly, quarterly, half yearly, and annual basis.

In the questionnaire to the departmental heads, the question is set in such a way, that the respondents can grade the level of information he receives from the administrator and from those under him, by ticking the appropriate statement. The questionnaire is arranged in a sequential order dealing with

A) The information expected by a departmental head from his top administrator on:-

Policy, procedure and standards

Staffing

Equipment, facilities, and supplies

Planning, and

Performance of the department.

B) Information received from supervisor, by the departmental heads

C) Interdepartmental information; and

D) Future plans.

The Sample size consists of voluntary hospitals 'A', 'B', and 'C'.

Hospital 'A', consists of about tuenty eight departments, 50% of departmental heads were served the questionnaire; the sample being represented by medical, surgical, speciality, nursing, personnel, paramedical supportive, and administrative departments.

Hospital 'B' has got about sixteen departments, some of the departments being clubbed together under one departmental head. Questionnaire was served to eleven people, representing medical, surgical, supportive, nursing, paramedical, and administrative sections.

Hospital 'C' has got twelve departmental heads, all of whom were interviewed. Medical, surgical, nursing, accounts, personnal, and supportive service departmental heads make up the sample.

CHAPTER - II.

MANAGEMENT INFORMATION SYSTEM IN HOSPITALS

INFORMATION VERSUS DATA

HOSPITAL INFORMATION SYSTEM AND QUALITY ASSURANCE

INFORMATION NEEDS OF HOSPITAL MANAGERS

VALUE OF INFORMATION

DESIGNING THE MIS

CRITERIA FOR GOOD MIS

FUNCTIONS OF MIS

INFORMING THE STAFF

MAJOR BARRIERS TO EFFECTIVE MIS FOR QUALITY ASSURANCE IN HOSPITALS

RECOMMENDATIONS

INFORMATION VERSUS DATA

Information is relevant input for decision making. Data are facts that are not currently being used for decision making purpose. Data must be separated according to the needs of various types of decisions. Data can be grouped according to their applicability to information requirements for strategic decisions, administrative decisions, and operational decisions. In the hospital setting, data can be separated to meet the needs of the medical or nursing staff, administrators, the financial group and various reimbursement agencies. Data can be classified into currently useful data, potentially useful data, and extraneous data. Identification, collection, classification, processing, communication, interpretation, storage, and retrieval of relevant data are important aspects of an information system. (20)

HOSPITAL INFORMATION SYSTEM AND QUALITY ASSURANCE

Quality assurance systems in health care is data dependent. Timely and accurate information abstracted from the medical records of patients treated in the institution provides the basis material which health professionals utilize in assessing diagnostic and treatment pratcices. An effective clinical information system is a must in the quality assurance of programmes for the hospital. The major problem encountered is the lack of linking of clinical and administrative information for management planning and control purpose. Use of information system to support quality assurance is limited. Management process in hospitals are

information dependent, requiring data that is relevant, timely, accurate, and sensitive. MIS has not yet met their potential in providing effective information for management planning, evaluation, and control. Five sets of factors have inhibited the development of effective MIS in hospitals.

a) Technological limitations, especially inadequate system analysis.

b) Economic factors like under capitalization of the design effort.

c) Uncordinated demands for internal information.

d) Conceptual limitations in MIS design too often result in the collection of data for its own sake rather than relating information to pre-established standards against which performance can be measured. Lack of inability to combine clinical and financial data for cost analysis and performance assessment purpose.

e) Management shortfall - inadequate involvement and apparent lack of sophistication of top administrators in system planning and design is a final limitation. (22)

INFORMATION NEEDS OF HOSPITAL MANAGERS.

Managers find themselves unable to obtain information that should be available, or burdened with irrelevant data. Problem can arise from incomplete understanding of the MIS needs, and from application of inadequate techniques.

Hospitals consist of personnel and other resources brought together to perform certain functions. Functions are

carried out in line with defined responsibility for each person according to task specifications such as specific tasks, records to be maintained, etc. Organization has to be partitioned according to operational subsystems such as pharmacy, M.R.D, patient admitting subsystem, etc., having records and files for communication and information storing, under the responsibility of line managers. Managers time will be wasted when operational systems do not function as planned. The manager is responsible for the design of operational subsystems and the procurement of resources needed for their functioning. The better the system work, the less time spent in problem solving. MIS is needed for management control. The key aspect of management control is the key to manager's recurring information needs. MIS is needed for

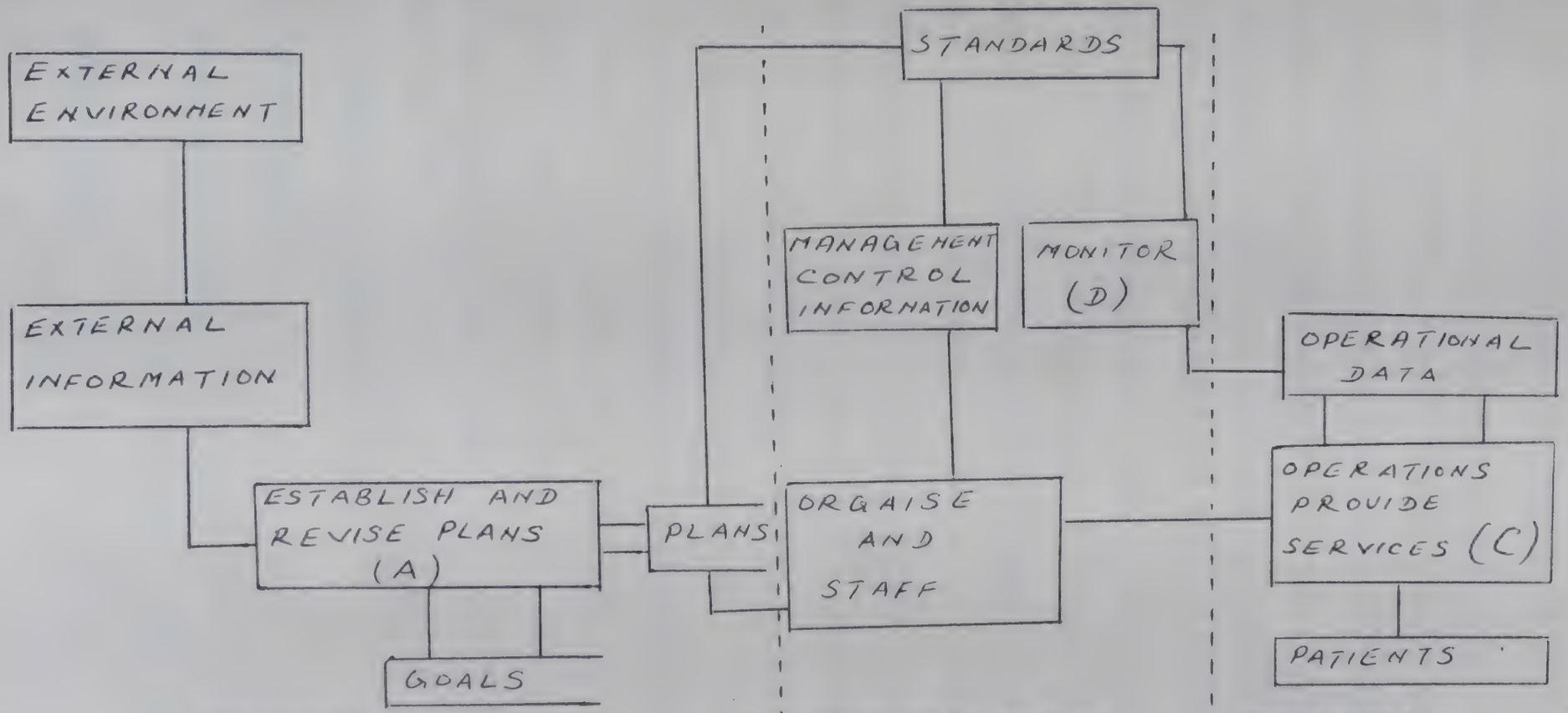
a) Operational Control - to assure that specific tasks are carried out effectively and efficiently, eg. ensuring that a given laboratory test is reported accurately and promptly. The emphasis is on specific tasks, and the managerial role is to procure the resources and intervene when things don't work as planned.

b) Management control aims at aggregate of unit activities. Management control information suggests the existence of a problem, the manager may simply communicate to the concerned department about the problem solving need, or if needed, can change and modify the operational subsystem.

c) Strategic planning involves developing and revising

FIGURE - I

THREE CATEGORIES OF MANAGERIAL ACTIVITY WHERE INFORMATION IS NEEDED



SOURCE: SAMUEL LEVEY. N. PAUL LOOMBA, HEALTH CARE ADMINISTRATION A MANAGERIAL PERSPECTIVE (J.B. LIPPINCOTT COMPANY, PHILADELPHIA) p.423.

the goals of the organization and decide on policies governing the acquisition of use of resources. Information needed depends on the specific decision being considered. Information such as description of the hospital's service population, are basic to strategic planning decisions. Data derived from hospital operations are unlikely to satisfy all, even most, of the information needed for these decisions, but a system for capturing and storing such data is an important tool for the planning. (23) (Figure I depicts the areas to be covered by MIS). According to figure 'I', the external environment obtains information such as new service opportunities, standards of performance from similar hospitals. Strategic planning (A) uses this external information in conjunction with goals and plans. Based on strategic planning, operation subsystems are planned. Procedures are planned, personnel and resources are organized to provide patient service. (B). Operation of hospital along with operational control is shown as (C). The resultant data, processed according to need serves as information. In the monitoring activity (D), the hospital compares the data, corrective actions are taken.

VALUE OF INFORMATION

Information to serve its purpose must be available in the desirable quality and quantity and at the time when needed.

A) AVAILABILITY: Since all decisions are based on information, the more accurate and to the point the information is, the better the quality of decision. Without information,

decision can be subjective and uncertain-

B) QUALITY: Inadequate, incomplete or incorrect information results in decisions of poor quality. Hence the need for information to be precise and reliable.

C) QUANTITY: Too much information will be a burden on management and too little may leave out some important aspects.

D) TIMELINESS: Crucial decisions can be delayed, if necessary information does not reach in time. Time gap between collection of data and presentation of processed data should be reduced. (24)

DESIGNING THE MIS

The system should be designed in such a manner so that

a) It supplies complete, accurate and timely data which can be used for effective planning and decision making. This can eliminate problems associated with inconsistant, incomplete and inaccurate data.

b) It identifies and quantifies the inter-related operational and performance variables, and develops a relationship of these variables which can be projected to forecast future trends.

c) It facilitates control of present costs by merging the financial and production data to produce measures of performance which can be closely monotored.

d) It identifies the separate needs of all units of a decentralised organisation in a cohesive manner to prevent duplication and waste of efforts.

e) It requires that the data to be presented is in a summarised form so that action can be initiated without further interpretation and analysis. This reduces time and volume of information.

f) If provides flexibility so that the system can be changed and adapted to the chnage, when necessary. (25)

g) Draw up an information system which meets organisational objectives.

h) Conduct ongoing evaluation and development of the system. The first stage needed in MIS is need determination, entailing a definition of the present system, definition of future needs, and an analysis of the discrepancies between present system and future needs. When it comes to actual operation, we will find several areas in which difficulties may arise and in which the system may not provide information adequate for efficient organizational performance. For MIS to be implemented the pre-requisites to be fulfilled are clarity in tasks, providing steps, equipment, and facilities, organization, systems documentation, conduct of operation, personnel, files and records, costs, and data collection. Organizational needs must be well defined for proper assessment of organizational needs. For MIS to function effectively, change in procedures and operations and cooperation and rapport among departments will be necessary. (26). MIS can be to meet a predetermined range of management needs, or through a distinctive system, meet a distinctive need. Personnel have to be acclimatised to MIS.

CRITERIA FOR GOOD MIS

Produce periodic reports tailored to the unique information needs of individual manager.

Produce, on request, "demand reports" which contain more detailed information than that provided in routine reports; and

Support ad hoc enquiries into the hospital's data base for information associated with special studies, strategic planning activities, and other needs". (27)

The first requirement to fulfil this, is identification of specific types of information required by managers. For periodic and demand reports, list of indicators that are tailored to individuals, to decision making, and control responsibility, and to managerial style must be developed. It should be complete. Manager's information needs should consist the aggregate of informations associated with decisions he or she must take. (28)

FUNCTIONS OF MIS

There should be provision for a hospital wide network to provide direct communications among all departments.

a) Transaction systems are developed to handle the day-to-day operational and administrative matters of the hospital, which mainly consists of paper work, necessary to carry on medical and business functions.

b) The operational planning and control reporting system provides summarised data about daily operations,

giving departmental managers and health care professionals, the necessary information to monitor the various activities, for which they are responsible. Monthly balance sheet and income statement, Key expense summaries, budget variation summaries, and occupancy and patient mix reports.

c) Strategic planning requires provision of framework for current decisions with longrange implication.

i) Patient care strategy (levels of care, occupancy and service requirements)

ii) Medical staff strategy (recruitment, community needs)

iii) Facilitates planning

iv) Budgeting and rate-setting models

v) Personnel policies.

MIS should be in line with the philosophy and objectives of the institution. (29)

MIS needs and problems require key personnel from each department to identify their current information needs, and the problems they have in meeting them; eg. members of management, departmental heads, members of medical staff, and other appropriate personnel as determined by the committee. (30)

INFORMING THE STAFF

The work of a senior hospital administrator consists largely of making decisions and carrying them into effect. Such decisions may be made, quite simply, by reference to the appropriate reference book or document, and repeating the information or instructions contained therein ....

" A decision should be precise, promptly given, and accurate. If necessary, it may be accompanied by an explanation so that the reason for the decision is understood, especially if it goes against the wishes of the person..."(31)

Gossip and rumour circulate in all communities. By giving the correct information to people much of the rumour can be avoided. Every worker wants to know what his work is, where he is to work, about pay and other conditions of service, amenities, holidays, and so on. He would like to know what is happening in the organization, outside his own particular sphere, especially if it is going to effect him. Administrators are at the centre of things and know, or should know, what is going on. They then take it for granted, that what is known to them, is known to all. Much information can be given orally at an interview, but there should be a booklet for reference on all matters of interest and concern to the staff.

The letter of appointment should be precise in setting out terms of employment. All changes in this should be informed. New salaries should be informed. Notice boards should be cited where all members shouldx of the staff will see them. Those intended for official notice should be labelled. Out of date notices should be removed. A staff magazine, or bulletin, can be used effectively. Joint consultative committees are accepted means of discussion of hospital matters between management and staff. A representative meeting of staff may be held for the purpose of informing them what is going on in the hospital. Added to

this, specific areas of information can be.

a) Keeping departmental heads informed of the progress of expenditure and costs of their departments.

b) When goods are requisitioned, but are not available, or need the sanction of higher authority, the person making the requisition should be informed.

c) Magazine on specialised matters should be circulated among those to whom they are of interest. (32)

MAJOR BARRIERS TO EFFECTIVE MIS FOR QUALITY ASSURANCE IN HOSPITALS

a) Lack of standardisation in data definition (particularly medical record abstract) and lack of agreement on standard criteria to be ubilized for medical audit, have slowed the development of generalised systems, which could be used in multiple hospitals. Standardization is required if quality assurance systems are to become effective. There is gap between HIS technology and our ability to agree on standards.

b) Lack of integration of information systems in hospitals inhibits the building of a reliable data base for quality assurance purpose. Many hospitals have followed a patch work approach than following a master plan.

c) The inability of most hospitals to integrate clinical and financial data makes it impossible to use HIS effectively for managment planning and cost control purpose.

d) Problems in obtaining physician acceptance for standardisation.

e) Generic problems such as inadequate system analysis and design prior to implementation of a new system, underfunding of the system developing effort, and inadequate involvement and lack of sophistication of top administrator in system planning and design.

f) Lack of national level professional associations to develop standard system. (33)

RECOMMENDATIONS

Several steps could be taken to improve utilisation of HIS.

a) Improved planning of HIS development would result in better integation of systems within the hospital, generating a data base of clinical and administrative information, which would be available for quality assurance and performance monitoring purpose.

b) Top administrator and middle managers need continuing education to raise their level of sophistication about HIS analysis and design.

c) Develpp standardised definitions to be used in multiple hospitals.

d) Design a comprehensive quality control programme including regular sampling of patient satisfaction and monitoring of incident reports in the hospital. (34)

CHAPTER - III

INFORMATION FLOW

ORGANIZATION STRUCTURE

COMMUNICATION (INFORMATION FLOW)

RECORD RETENTION SCHEDULE

Depending upon the organization structure, communication and MIS are affected. Highly authoritarian organizational structure can perpetuate communication only in one way.

"Through the information - decision system the hospital becomes people, not just a set of buildings. The information-decision system can be called the hospital's animating principle which uses some components of the traditional structure, but adds important advances in social sciences and technology to produce a valuable modern organization, which stresses the mutually dependent parts, interrelates and coordinates the various sub-systems, and builds in equilibrium mechanisms, so that the hospital can remain at, or rapidly be returned to homeostasis by the whole hearted participation of all in the organization." (35)

ORGANIZATION STRUCTURE

Developing the structure of an organization is an attempt to logically and systematically group people, operation and function. Structure follows functions, if the structure does not help in serving the functions to meet the objectives of the organization, it has to be changed. The organization structure has to be designed to meet the defined philosophy, objective, and goal of the institution. It is this structure that depicts the flow of information system. A clearly defined organization structure is necessary for MIS to function well. If MIS

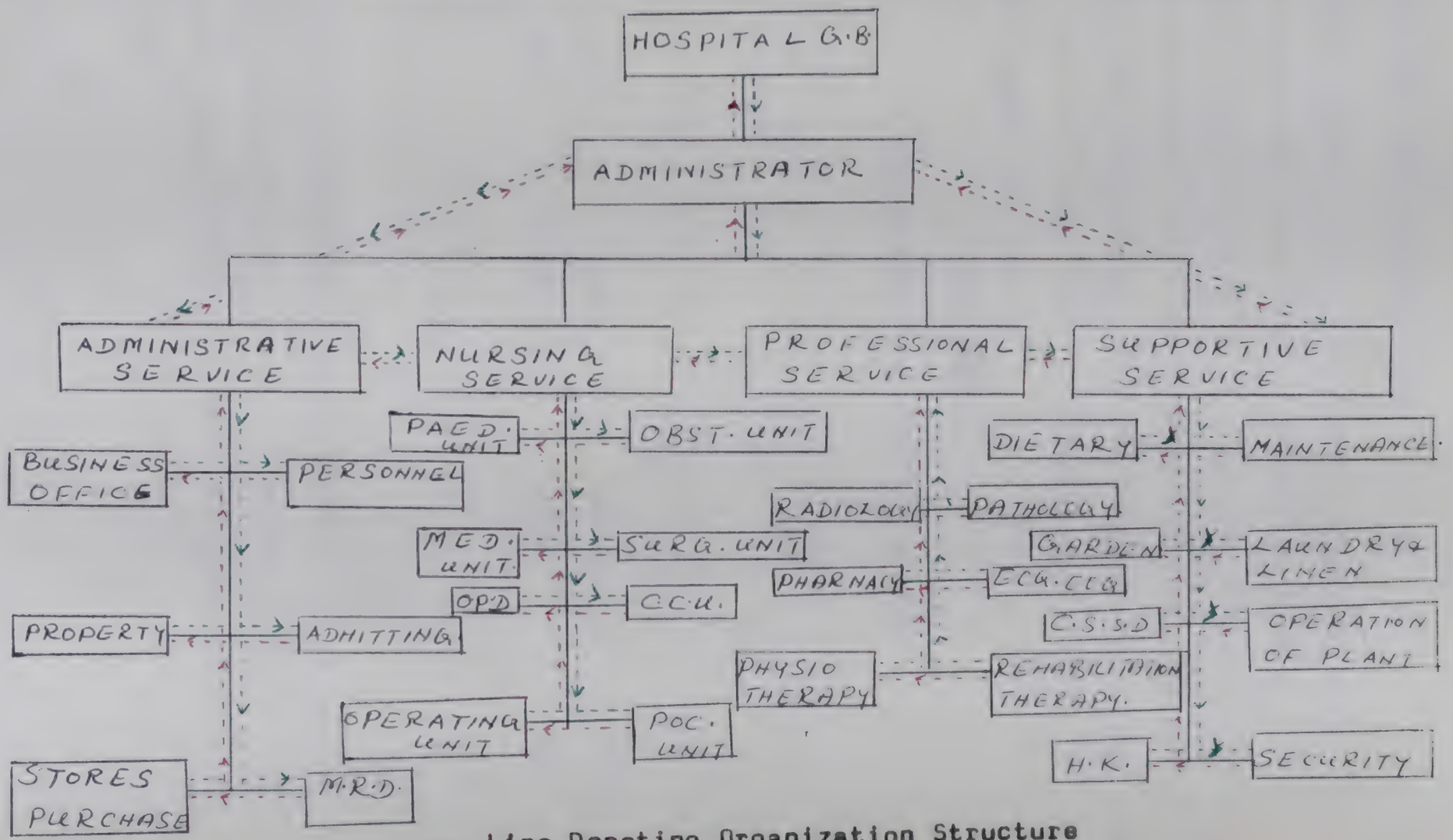
does not function well, it indicates the need for re-drawing the organization structure.

Hospital organization is one of the most complex of all organizations. Patient care is the ultimate aim of the hospital. There are personnel and departments directly linked to patient care. But there are also departments like Supportive Services, Training and Development, Information and Review, etc., which render indirect services. For all these departments to function efficiently, a flow of information is needed. A highly authoritarian structure with downward flow of information alone will not fit into today's need. There has to be a balance between consistency and flexibility in the flow of information in the organization, balancing the need for formal and informal information flow.

Figure II shows the ideal way in which formal information has to flow, and also the communication loops Figure III - IIID further develop the information flow. Each organization should provide room for sufficient flow of healthy informal communication flow.

FIGURE - II

A SAMPLE ORGANIZATION STRUCTURE SHOWING THE FLOW OF MIS



—— Line Denoting Organization Structure

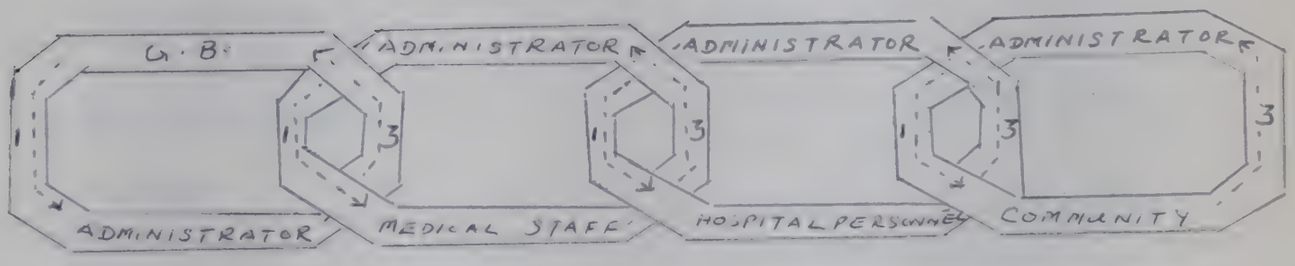
=:=: Formal Communication Link.

COMMUNICATION (INFORMATION FLOW)

The purpose of an information - decision system is to ensure dynamic reporting, because it relies on a continuos flow and use of adequate information. It forms the communication loop from administration to all departmental personnel and back again. The entire chain of communication is pictured in Figure III. An enlargement of each link is seen in Figures III A - D.

FIGURE - III

INFORMATION LOOPS IN A HOSPITAL



FIRST	SECOND	THIRD	FOURTH
LOOP	LOOP	LOOP	LOOP

These loops are links in a chain which coordinates the various departments and specialists into a smooth functioning organisation. There are three parts to every lopp.

1) DOWNWARD FLOW: Orders, organization, general information.

2) HORIZONTAL: face to face contact, conferences, newsletters, phone, procedures for clearance and review of written material.

3) UPWARD FLOW: Feedback and new information, reports, general information, ideas, suggestions.

FIGURE III 'A' (FIRST LOOP)

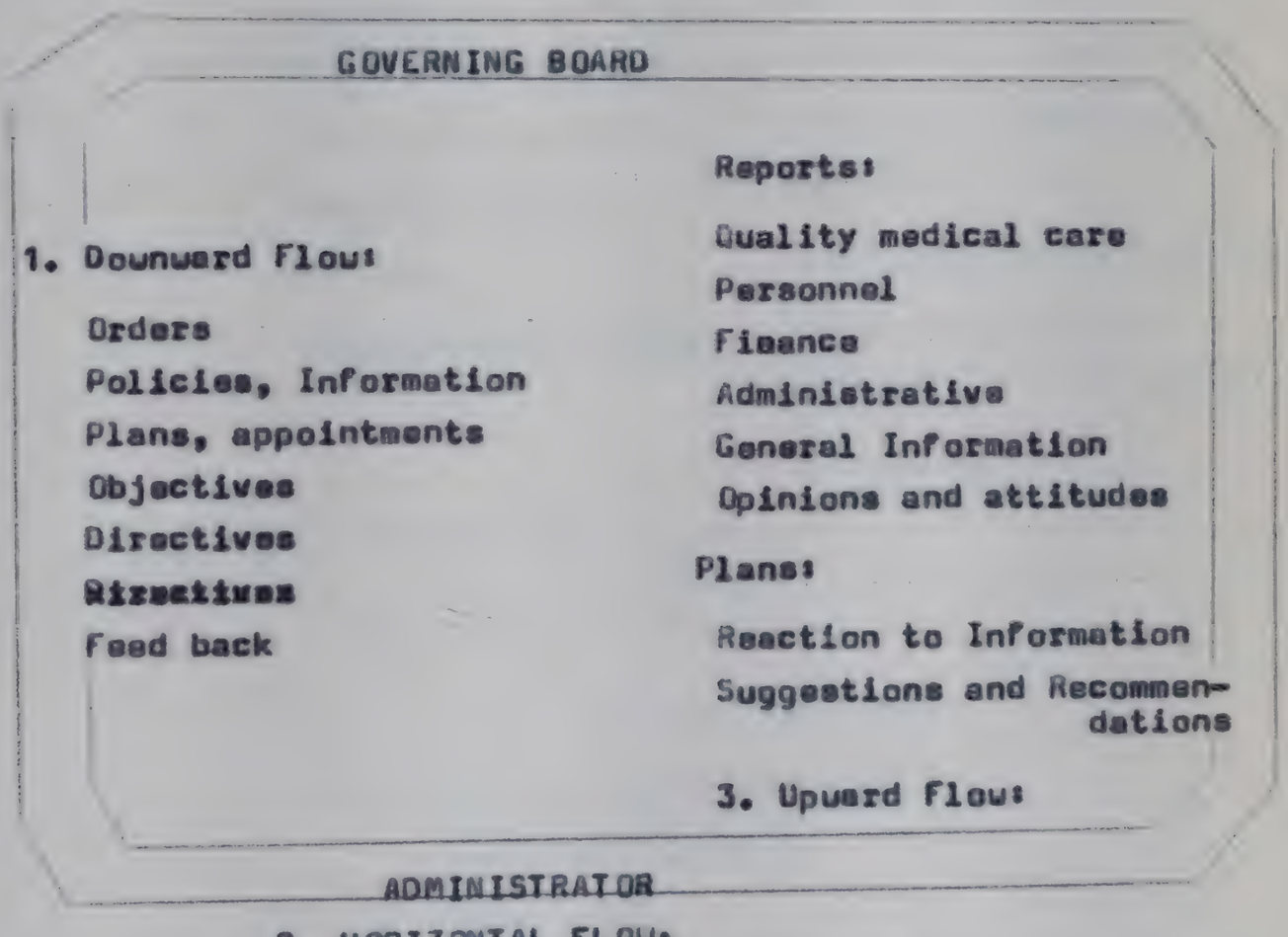
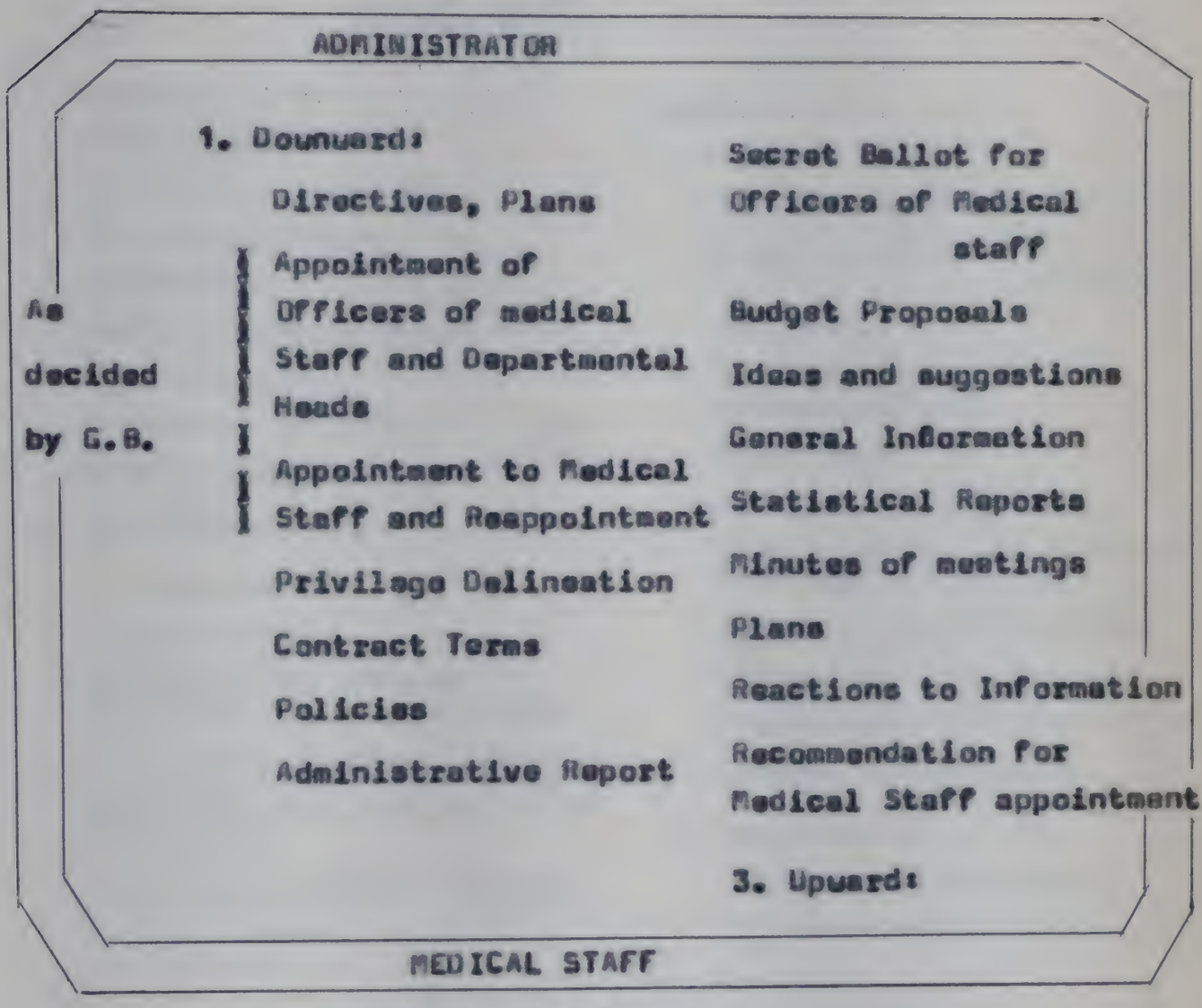


FIGURE III 'B' (SECOND LOOP)



2. Horizontal Flow:

Medical Staff newsletter

General Staff meetings

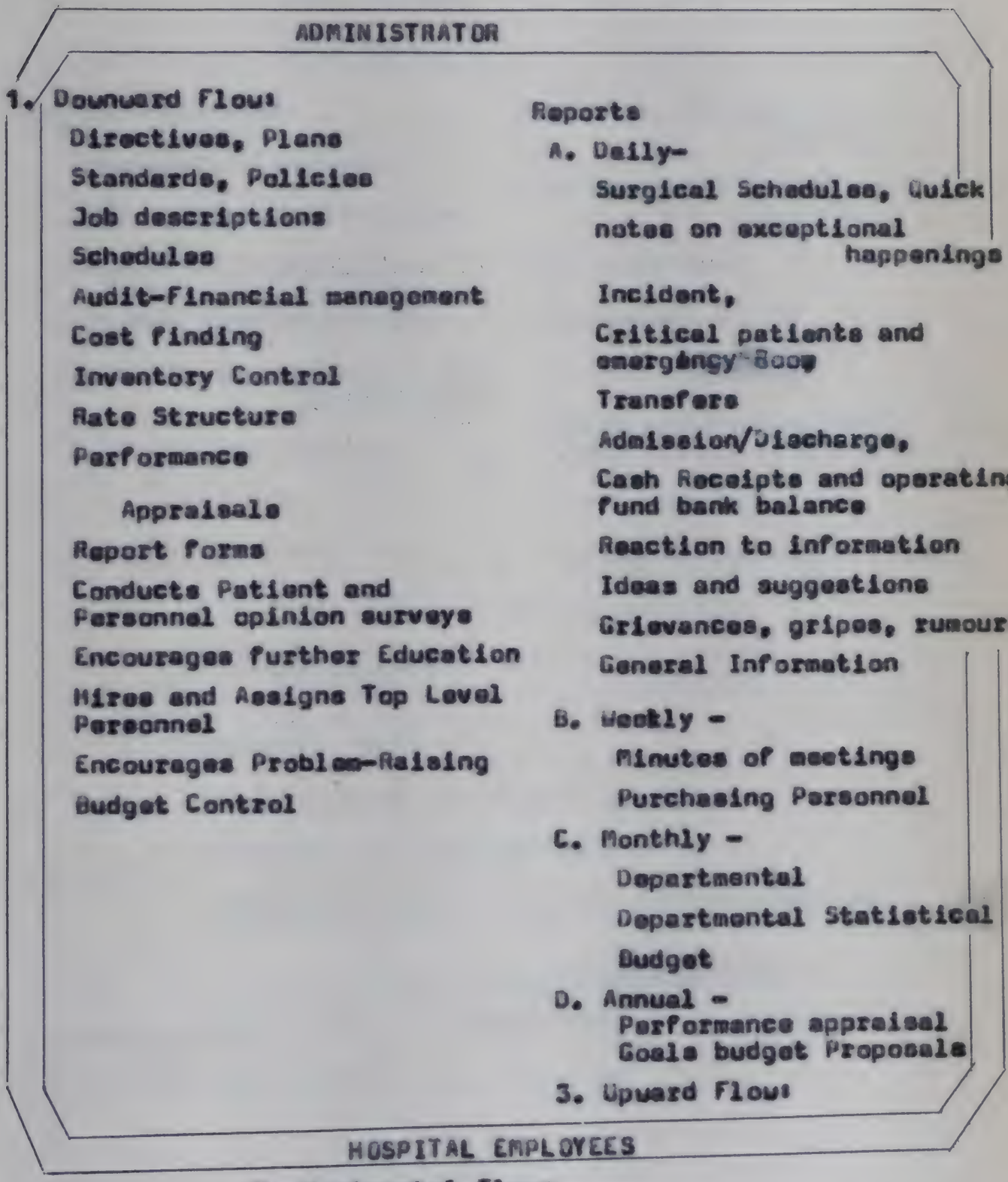
Committee meetings

Executive

Credentials

Medical audit

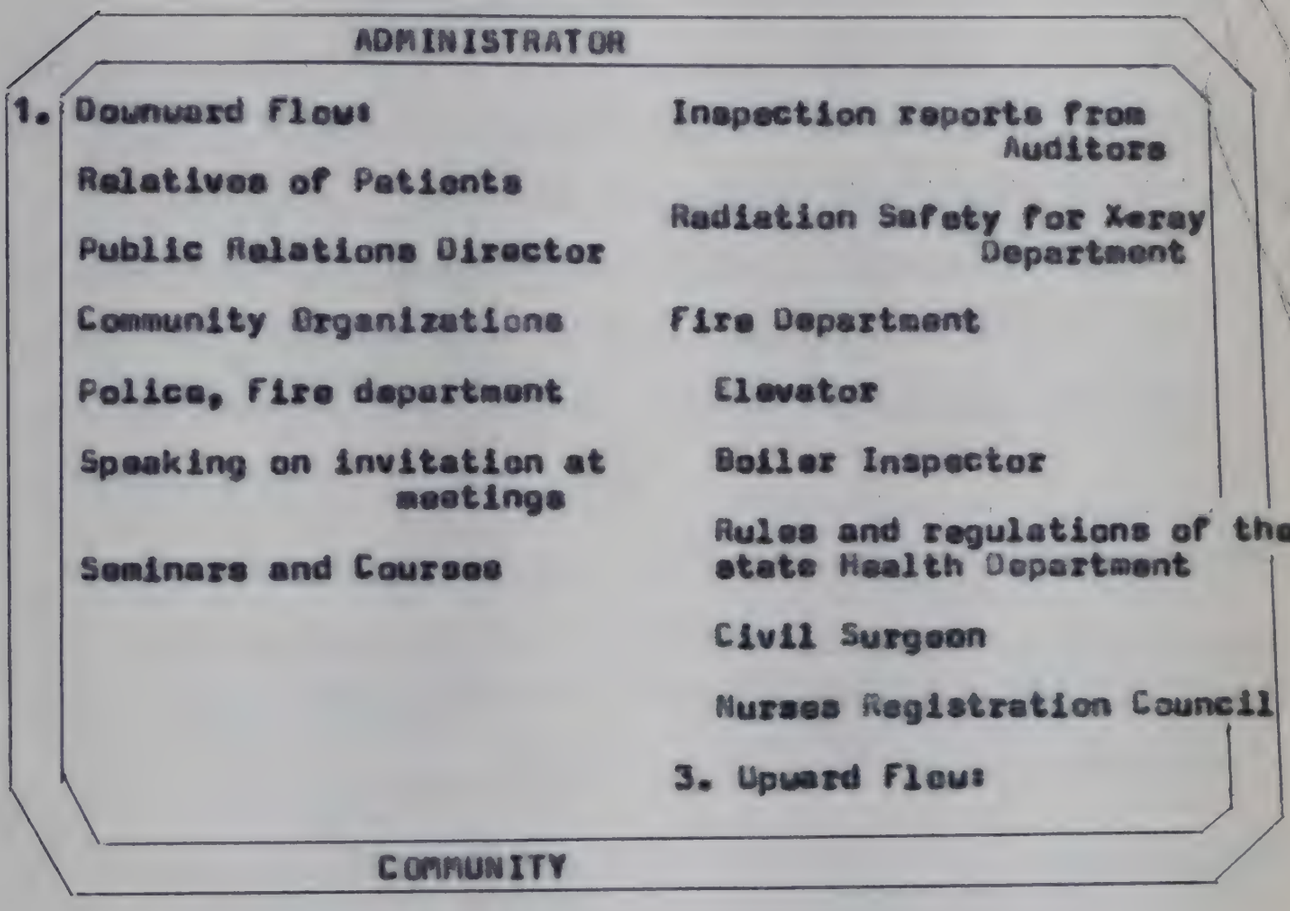
FIGURE III 'C' (THIRD LOOP)



2. Horizontal Flow:

Social getherings
Administrative Council meetings
Selected department head meetings
Intra-Departmental meetings.
Grievance Committee meetings
Joint departmental committee meetings
Safety committee meetings
Patient-care committee meetings
Infection control meetings

FIGURE III 'D' (FOURTH LOOP)



2. Horizontal Flow:

Inspection by all listed agencies

Professional Organizations -

meetings, committee work, publication, etc.

SOURCE: S. Srinivasan's (ed): Management Process In Health Care (VHAI, New Delhi, 1982)

(for figure III-III D) pp 255 - 260

In implementing the information - decision system, one of the first rules is, to follow written communication and information except in emergency. This rule provides security as hospital policies flow to successive circles in the hospital. Personnel know where they stand as to duties, authority and responsibility. Written reports assure the administrator of satisfactory performance and provides information for future planning or for revision of plans. (36)

The four steps in the process of information flow are:

- Collection of the input section
- Initiative where sorting, studying and assigning takes place.
- Participation, where everyone in the organization is involved
- Receptive or the output section - when organizational consensus is reached, and decisions are implemented, the output is a smooth functioning, efficient organization. (37)

A) PROCESS COLLECTIVE:- As seen in figure III, all information is sorted, classified and referred to the proper persons and places. In the administrative office there should be a master control board for the information - decision system. Projects, origin, person to whom it is assigned, assignment date, date due, date submitted, disposition, and control should be noted. This has to be kept up-to-date by administrator.

B) PROCESS INITIATIVE:- Dicisions are made at different levels.

" a) Major hospital dicisions as outlined in the charter

and By-laws of the Society are made by the Governing Board.

b) Inter-Circle decisions are authorised by the administrative council.

c) Intra-circle decisions are authorised by the coordinator.

d) Intra-Departmental or Inter-Unit decisions are authorised by the departmental head.

e) Intra-Unit decisions are authorised by the Supervisor". (38)

C) PROCESS PARTICIPATIVE:- In studying the information flow, participation provides for vertical and horizontal communication.

a) Anyone in the organization should be free to raise a complaint, make a suggestion, or question any aspect of the hospital operation.

b) Anyone can be assigned to handle problem.

c) Organizational Consensus must be reached before the administrator authprises the solution.

This participation makes the information decision system a help in removing the wall between manager and subordinate. (39)

D) PROCESS RECEPTIVE:- "Policies, procedures, rules, regulations, budgets, and standards are needed to coordinate, plan, organize, staff, direct, control, and effectively communicate. When the system works we see achievement of organizational goals, quality services, personal involvement

of all the personnel and increased job satisfaction, and personal commitment to the organization. (40)

RECORDS RETENTION SCHEDULE

In order to keep records and information only as long as it is needed, a schedule of record retention has to be set up. Only vital records need to be kept permanently. Some benefits of such schedules are

a) "Elimination of needless filing of records not really needed for reference purpose.

b) Preservation of "Vital Records" to protect assets, and continue operations in the event of a catastrophe.

c) Set up organized disposition of records on annual or otherwise scheduled basis.

d) Maintain proper control of records based on legal requirements.

e) Provide cost saving, needless space and filing equipment.

f) Can lead to improved clinical performance, less voluminous files to search through in retrieving data". (41)

Control is a subsystem. Some methods of control that can be used are :

" - Incident reports.
- Accountability reporting.
- Monthly departmental reporting.
- Audit of policies and procedures
- Performance appraisals

- Patient opinion survey
- Patient Care Committee
- Administrative audit
- Medical Audit
- Contcol Committee of the medical staff
- Cost - budgeting of the medical staff
- Cost - budgetary plans, and
- Cost Binding". (42)

Information is the medium of control in assessing quality standards of service. Its effectiveness depends on the rapid feed back of information. For this, the administrator should have set items to be reported immediately.

A critical look at the organizational structure(if at all one is existing) will show that the organizational structure is one more decoration for the institution. Often there is no defined structure, which clearly represents the information flow according to authority and responsibility. Informations are often bypassed. There is no involvement of departmental heads is decision making in some organizations. Information flow does not correspond to organization structure. Often the manag ers at different levels are overlooked. If managers at different levels screen the information at each level of decision centres, only the essential information will reach the administrator. Then the up-to-now existing custom of managers spending a lot of time in the routine and urgent matters can be lessened to a great extent. If

there is proper and planned MIS, information leading to decision making need not be sacrificed, on the altar of urgent, routine ones. This will enable managers to find time in vital and creative thinking and planning and controlling. A closer look at the information flow will make the managers realize the need for re-drawing the organizational structure. The system of reporting to dual authority is also a problem in the highly complex nature of organization.

Multi authority and multi reporting system creates a lot of complication in organizations, more specially in MIS. Many of our administrators do not understand the complexity, and do not make an effort to improve organization structure, to meet such complexity, which remains as an inherent bottle-neck in most hospital organization system.

In all voluntary hospitals, a lot of data is generated, but it is not based on the need of the organization, neither are the useful and essential data made use of for planning. If data and reports are handled by a creative mind, a lot of these can be used as a control measure, to ensure quality of service. Still data and information remain a status symbol rather than a practical guideline in steering the organization to achieve its goals objectively.

CHAPTER IV

ANALYSIS OF MIS IN THREE HOSPITALS UNDER STUDY

HOSPITAL 'A'

HOSPITAL 'B'

HOSPITAL 'C'

COMPARATIVE ANALYSIS

FINDINGS

CONCLUSION.

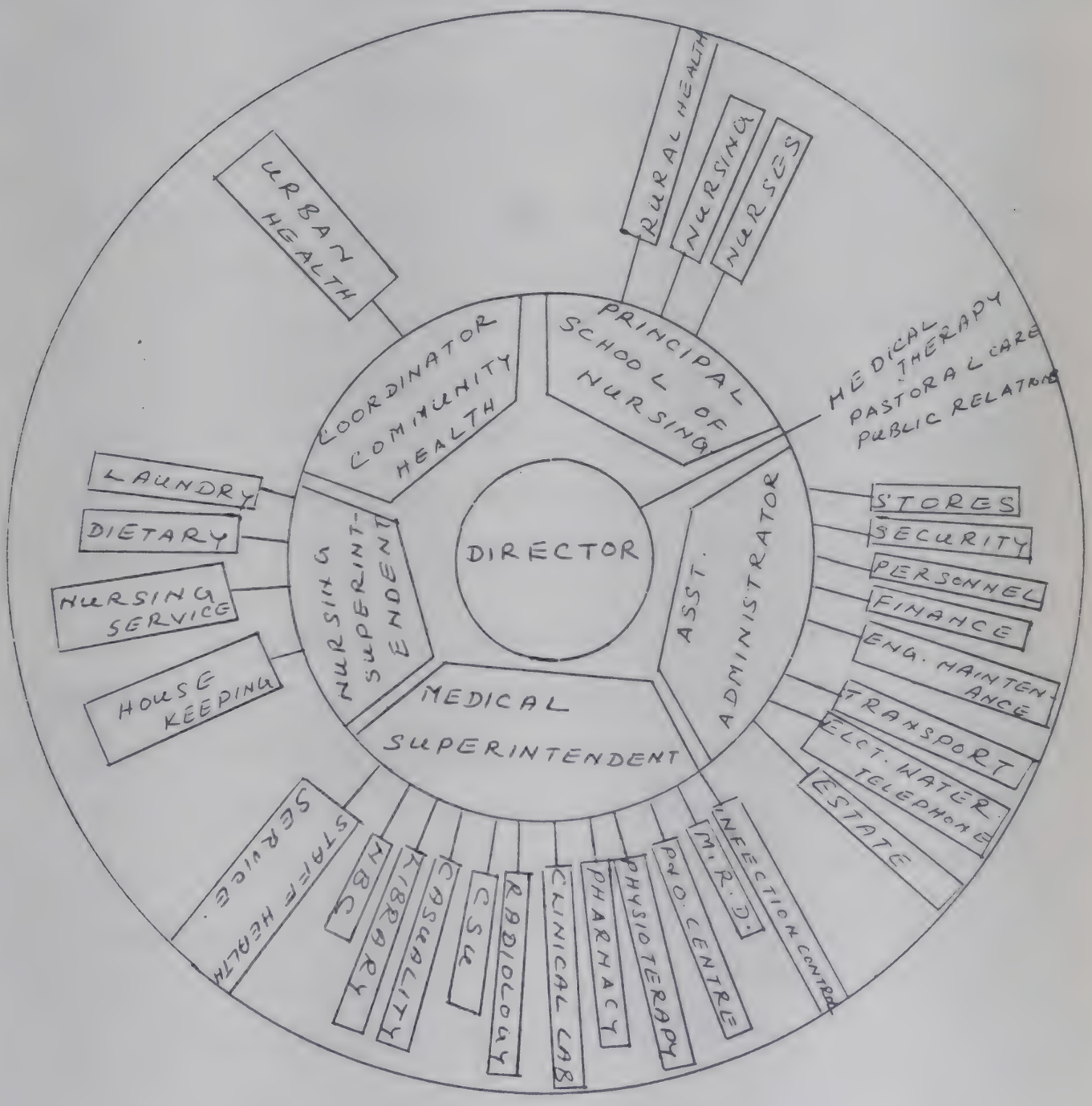
HOSPITAL 'A':

A) BACKGROUND:- Hospital 'A' started in response to the felt need of the community in 1886, by devoted sisters with the aid of local community, government, and foreign agency. It started as a sixty bed hospital, grew into 600 bed hospital, with many specialities. It offered its facilities to the medical students from 1963 to 1983; started a school of nursing in 1968. It caters to over two lakh of out-patients, and twenty thousand in-patients annually. The organisation structure has also changed and evolved into the present one.

B) ORGANISATION STRUCTURE:- Figure IV depicts the organisation structure of Hospital 'A'. The governing Board does not enter into the organisation structure. The governing Board (G.B.) deals with the philosophy and objective of the organisation, and deals with finance; other administrative functions are handled by the Director. The information flow does not take place always along the line of organization structure. Ofcourse there is flexibility so that confidential matters are referred to the concerned person without going through and through. But also official matters that has to pass through decision making centres are bypassed and go to the top administrator, and vice-versa. As far as hospital 'A' is concerned,

FIGURE - IV

ORGANIZATION CHART OF HOSPITAL 'A'



this does not create any major problem, I am told, but anyone can sense a potential danger lurking behind this.

C. ANALYSIS AND FINDING OF QUESTIONNAIRE:- To get a more clear picture of MIS in this hospital, a questionnaire was served to the top administrator, and another set to fifty per cent of departmental heads out of twentyeight The questionnaire is attached in the appendix. The finding of questionnaire analysis can be categorised as following:

1) INFORMATION TO TOP ADMINISTRATOR:

a) Assessment of operational controler productivity:

i) Patient and service information:- Daily information received are report of unusual incidents, notifiable disease, staff sick, iatrogenic complications leading to death, and occasional information about V.I.P. admissions.

No information on daily census-admission discharge death, etc., no weekly or quarterly information. Number of laboratory tests, X-rays, operations, deliveries, prescription, are not informed. No monthly information about number of critically ill patients, and number of emergency operations. Practically no information about the service rendered by supportive departments. No annual work statistics, or projection of service for the coming year.

ii) Work Report:- Monthly information about work statistics derived from discharge analysis like average length of stay, occupancy rate, departmental statistics,

total patient days, admission, discharges, death, and census are received. Annual work report on medical care, paramedical care, nursing care, and supportive service are received.

No work report is received from paramedical or service departments on a monthly or quarterly basis which is again reflected in the utilization of facilities. No information about purchase, issue, and stock from pharmacy or stores.

iii) Utilization of facilities:- No daily information of census, or daily work report on laboratory, x-ray, no number of operations are informaed. No annual work statistics or projection of service for the coming year. No report from Central sterile Unit as to the amount of work done, packs or trays sterilized. No knowledge about total number of meals prepared.

In operational control, only very minimum information is received. A major part of patient, and service information work report, and utilization of facility is lacking.

b) Resource Management:-

i) Cash and Bank (Finance):- No daily information about bank and cash position, or expense. No information about average income or expenseper day, or per patient, nor about cost of free care. No half yearly balance sheet,

analysis. No annual information or computation about income, expense per day , or per patient hospitalization. No financial ratio analysis, no computation of salary per I.P. day.

Income and expenditure, and budget comparision, and analysis on an annual basis, also annual balance sheet comparision, are received.

ii) Stores and purchase:- No weekly information about stores and pharmacy purchase, and issue. No quarterly information about inventory, nor six monthly inventory checking.

Weekly major purphase of stores is informed, also pharmacy purchase, sale, and stock for the month are informed. Capital items to be replaced for the coming year, are received.

iii) Accounts receivable and account payable for the month are informed.

iv) Personnel:- No monthly information about personnel, joining, leaving, number of grievances, nor any other issue related to staff are informed. Staff information to employment exchange is not informed to the top administrator. No list is drawn out for staff who will be leaving or resigning in the coming year.

c) Quality assurance (Review):-

i) Medical care:- No monthly information about death review, infection review, stillbirth rate, number of Caesareans,

tissue committee report, medical audit report, or utilization review. Annual report is received.

ii) Nursing Care:- No information about operations, deliveries, number of critically ill patients, or number of emergency operations.

Unusual incidents, death, occupancy rate of I.C.U. and C.C.U, are informed on a monthly basis.

iii) Diagnostic service:- No work report is received on number of laboratory tests-emergency tests, outside specimen coming in, specimen going out- or comparative statistics. Also total number of x-rays-routine, general, outside referrals nor comparative statisca are received.

d) Planning:- No major plans for the next quarter are received in time. No drawing out a list of staff resigning and retiring; no annual work statistics or projection of service. For strategic personnel planning, no information is received as to how many joined, left, or number of grievances. For equipment and facility planning too, no adequate data about the actual output or projected output of service. Suggestions and recommendations gathered from departmental and committee meetings are not available.

Capital items to the replaced for the current year are informed, also annual budget is drawn out.

2) INFORMATION TO DEPARTMENTAL HEADS:-

(The sample size is 14 (58%) departmental heads)

The analysis from the findings of the questionnaire can be depicted as follows:

a) From Top Administrator:

i) Policy, Procedure, and standards:- Majority of the departmental heads (6-9) are well informed about the policy, procedure, and standards, while about four to six respondents are somewhat informed, about one to three are of the opinion that they are not at all informed, and a very few remain indifferent as to they are informed or not.

ii) Staffing:- The staffing pattern and selection are decided by the director alone according to four to six respondents, three to six are of the opinion that departmental heads and director together decide, by the departmental heads alone according to four people, and one is indifferent as to who decides.

Job description and orientation and performance appraisal are dealt with by the departmental heads according to five to eight respondents, no clear procedures are followed according to three to five and by the director alone according to two to three, while two are indifferent as to who decides.

Seven of the respondent are not aware of any promotion policies, six are informed to some extent, one person is indifferent, and none is well informed.

Job analysis is done by eight departmental heads, and approved by director, three others join with the director for the same, two are of the opinion that administrator alone does it, and one respondent is indifferent.

Disciplinary action is initiated by director alone according to eight people, departmental heads initiates according to three, and three others say that there is no procedure at all.

iii) Equipment, facilities, and supplies:- According to eight respondents, the essential equipments are modern and up-to-date, five say that all equipments are old fashioned, and one person is not bothered.

About ~~the~~ six departments lack essential equipments, and the director is aware of it.

Necessary equipments, and additional facilities can be suggested by departmental heads, according to eleven respondents, two are of the opinion that they can ask for the same, and yet another is not concerned at all.

Routine supply availability is ensured in time according to eight respondents, according to four, only sometimes, and two are of the opinion that it is never received in time. Nonroutine supplies can be got as and when needed according to six people, five say that the arrangement is not organized, and three are indifferent. Information about shortage of supplies, and price rise

M-12-5

are informed in time according to four to six respondents, only when the need arises to three to six departments, and not at all informed to one to four and one to three are indifferent. Procuremental difficulty about only major items are informed to seven departments, three are well informed in time, two are never informed, and another two are not bothered.

iv) Planning:- In information and participation in budget making, departmental planning, changes in the plans, goal setting of departments, and overall plans and changes, majority (3-8) are only informed about plans or changes in plans, a sizeable group (1-8) are not at all informed or involved, while one to three respondents are indifferent. Seven respondents are clearly informed about areas and standards of improvement in quality, three are of the opinion that no areas are specified, and one is never informed about the same, and three are indifferent.

v) Performance of the departments- Coming to the feedback on functioning, financial data, quality of service, on the whole running of department, majority (4-7) receive feedback only once in a way, another good number (2-7) never receive any feedback, while a group of two to four receives regular feedbacks, and one to two are not bothered.

b) From Supervisors:- Five to six departmental heads are indifferent to any information on day to day

work plans, or any change in them, an equal number is somewhat informed, one respondent joins with supervisor for planning, and one person is quite indifferent.

Six people are well informed about the grievance of personnel, and action is taken, three are of the opinion that it bypasses and goes to the director, two are of the opinion that there is no grievance procedure at all, and three are indifferent.

Work and work related problems are well informed to six departmental heads, three are somewhat informed, a group of three to four are quite indifferent, and one is not at all informed.

Information about leave taken, and staff falling sick are well informed, and have to pass through the departmental heads according to majority respondents. (9-11), one to three are only informed, while another one to two do not receive any information. Six departmental heads are well informed of the problems of the staff, five are informed to an extent, two are not at all informed, and one is indifferent. Daily work report/statistics are received by only two respondents on a regular basis, while four each receives only on request, once in a way, or not bothered at all.

c) Interdepartmental information:- Eight respondents are informed only to an extent, three are well informed, and another three do not receive much information.

d) Future Plans:. Six departmental heads are involved in future plans, for four departments, director makes and informs, and four are not at all informed. Nine respondents are informed about any change in plans, three do not receive any satisfactory information, one is well informed about All plans, and yet another is thoroughly indifferent.

HOSPITAL 'B'

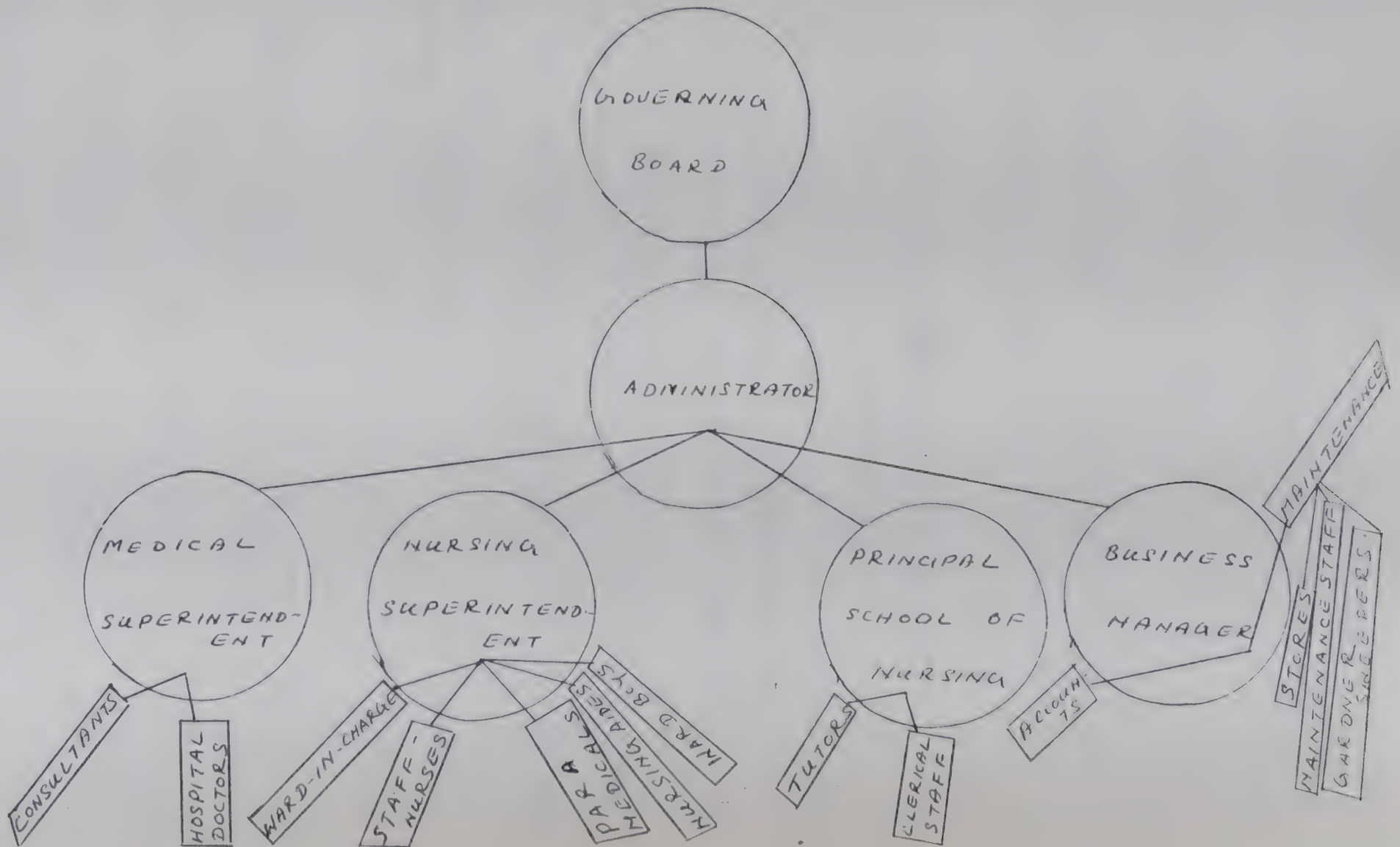
A) BACKGROUND:- Hospital 'B' started as a two bed dispensary by a dedicated missionary, in response to the felt need of the community, in 1937. Over almost half a century, it grew into a 250 bed hospital, rendering service in various areas, including some specialities. The medical team is mainly staffed by eminent visiting consultants. Total staff strength is 235. In due course it started a school of nursing too. As far as MIS is concerned, it is not well established.

B) ORGANIZATION STRUCTURE:

In the existing organization structure, as shown in figure V, there is no room for many departments like Personnel, House keeping, Laundry and Linen, C.S.S.D, Dietary, Anaesthesia, Operation Theatre, Delivery Room, Casuality, Clinical Departments, Medical Record, Reception/ Admission, Physiotheraphy, etc. With such an organixation structure, responsible functioning of each department becomes impossible, as the line of delegation is not well

FIGURE - V

ORGANIZATION CHART OF HOSPITAL 'B'



defined. To talk or think of a well established MIS in such an organization is difficult, as MIS has to flow through various decision making centres. What I learned from the administrator is, that there is no flow of communication along the lines of organization structure. Both, the administrator and managers at different levels feel and complain, that they do not get sufficient information.

C) ANALYSIS AND FINDING OF QUESTIONNAIRE:-

1) INFORMATION TO TOP ADMINISTRATOR:-

a) Assessment of operational control or productivity:-

i) Patient and service information:- No monthly information about average length of stay, occupancy, departmental statistical total patient days, admission, discharge, death, and O.P. visiterper month, is received.

Daily information like number of admission, discharge, death, census, reports of unusual incidents, V.I.P. admissions, notifiable disease, staff sick, iatrogenic complications, and medico-legal cases are received; also annual work statistics.

ii) Work report:- Daily work report of laboratory tests, X-rays, number of operations, deliveries, prescription to pharmacy, and out-patients are not informed. Weekly information on pharmacy and stores purchase, except purchase of major items, are not informed, neither monthly. No work report on C.S.S.D. performance, no exact information

about dietary output, no work report on medical, paramedical, nursing service, or supportive service are received. From maintenance depastment, important informations are received, but not in writing.

iii) Utilization of facilities:- No work report of dietary, laundry and linen, C.S.S.D., and maintenance are received. No work statistics of laboratory, X-ray, etc., to judge the utilization of facility; no daily report on number of pperations, deliveries, and pharmacy prescriptions are received. Practically no information to judge the utilization of facility.

Daily census is received.

b) Resource Management:-

i) Cash and Bank (Finance):- Daily income and expense are not known. No monthly ar annual information about average income or expense per day, or per month, neither is there any idea about cost of free care per patient. Quarterly no information is received about income and expenditure, and budget comperison and analysis. No half yearly balance sheet analysis for current ratio, working capital, inventory turnover, and collection period. No vertical and horizontal analysis of departmental income and expense, O.P, I.P. income per patient, or per patient day, loss or gain per day. Cost analysis broken doun into units like cost per food, cost of operation theatre per hour, financial ratio analysis, salary and wage content,

or salary per patient day are received.

Daily bank position is informed. Half yearly revenue and expense summary with comparative analysis and balance sheet are received. Annual comparative balance sheet is received. Capital items to be replaced for the coming year are informed.

ii) Stores and Purchase:- No report is received on checking of inventory, on a six monthly basis. Weekly information about stores, and pharmacy purchase and issue are not informed.

Information on pharmacy purchase, sale, and stock for the month is available. From stores, purchase, issue, inventory, list of capital equipment purchased are informed on a monthly basis.

iii) Personnel:- No information is received about personnel joining, leaving, number of grievances, and other staff related issue. No work load analysis is done when additional staff is asked for. List of staff resigning or retiring during the coming year, is not drawn up.

Staff information notification to employment exchange is informed to the administrator.

iv) Account receivable and payable are not informed.

C) Quality Assurance (Review):-

i) Medical Care:- No monthly or annual information is received about death review, infection review, stillbirth

rate, infant mortality rate, number of caesarens, tissue committee report, utilization review. No review of performance of any department is done or received.

ii) Nursing Care:- Regular information about number of critically ill patients, unusual incidents, deaths, number of emergency operations, and occupancy of I.C.U. and C.C.U. are not informed. No review of performance is done.

iii) Diagnostic Services:- To determine quality, information about number of laboratory tests, and X-rays are not known. Total number of laboratory tests with break up, emergency tests, outside specimen coming in, specimen going out, and comparative statistics are not received, the same with x-ray department too. No review of performance is done.

d) Planning:- No committee meetings are there. Departmental meetings are there, but no written report. No projection of services for the coming year. No major plans for the next quarter are received in time. There is no drawing out a list of staff resigning for various reasons, or retiring, to plan for replacements. No annual work statistics or projection of services. No service forecast for the coming year.

Capital items to be replaced for the coming year are informed.

2) INFORMATION TO DEPARTMENTAL HEADS:

(The sample size is eleven (90%) departmental heads)

a) From Top Administrator:-

i) Policy, Procedure, and Standards:- Greater number of departmental heads (2-9) are well informed of policy, procedure, and standards; an almost equal number (2-8) are informed to some extent only, while one respondent is of the opinion that these are not informed at all.

ii) Staffing:- Staffing pattern and selection are dealt with by administrator and departmental heads according to eight to nine respondents. Administrator alone decides according to two people, and accordingto one, departmental head alone.

Job description is done by departmental heads, according to four to five respondents, three to four are of the opinion that administrator alone does, while three are of the opinion that there is no clear procedure.

Promotion policy, to some extent, is made aware to seven respondents, and other four are not at all aware ofany.

Job analysis is done by departmental heads and approved by administrator according to five respondents, another three join with the administrator for the same, one is of the opinion that administrator deals with the same, and two people are indifferent.

Administrator alone initiates the disciplinary action according to five respondents, according to three,

departmental heads initiate, there is no specific procedure according to two, and one respondent is indifferent.

iii) Equipment, facilities, and supplies:- All essential equipments are modern and up-to-date, according to the majority respondents (8), one considers, that alleequipments are modern, and two are of the opinion that everything is old fashioned.

Four department lack essential equipments, and administrator is aware of it. Majority (8) are of the opinion that they can ask for necessary equipments and additional facilities; two are of the mind that they have no say, and one respondent considers that suggestions are accepted.

Routine supplies are available only sometimes in time according to six respondents, four are of the opinion that supplies are always in time, and one considers that it is never in time. For nonroutine supplies, no organized arrangement is there according to five, for four departments, flexibility is there in getting, for one department no arrangement at all, and one is indifferent.

Price rise is informed only for major items to six respondents, and five are not at all informed. Procurementa1 difficulty is informed well in time according to four respondents, another four are sometimes informed, two are never informed, and one is indifferent.

iv) Planning:- Involvement and information is different aspects of planning are there according to the majority (3-9), two to six are of the opinion that they are rarely involved, as only information is received, and two to three are not at all informed. According to six respondents, the administrator does not specify any area where improvement in quality is expected, while five others feel that the areas and standards are clearly defined.

v) Performance of the department:- Feedback on the whole is there only when something goes wrong, or when something is not satisfactory, according to three to seven respondents, while two to three departments get regular feedback, and one to two do not get any at all.

b) From Supervisors:- Four to seven respondents are once in a way, informed about day to day work plans or any change in them. Two to three are not at all informed, two are well informed or make plans together, and two respondents are indifferent.

Five departments do not follow any grievance procedure, according to four respondents, all grievances go straight to the administrator, and two are well informed about grievances and action taken.

Work and work related problems are somewhat informed to five respondents, well informed to three to five, and not at all informed according to one to three.

Leave taken, and staff falling sick are well informed,

and have to pass through departmental heads, according to the majority (7-9),.One to four respondents are of the opinion that administrator grants leave and only information is given, and one receives no information at all.

Family problems of staff are known to an extent according to four respondents, three are not at all aware, one is well aware, and three are indifferent.

Statistics, and work report are well informed, according to one, four are somewhat informed, three are not informed, and another three are indifferent.

c) Interdepartmental information:- Six respondents are of the opinion that interdepartmental information is very good, four do not have any, and one is informed to an extent.

d) Future plans:- Six to seven respondents are involved and informed about future plans, one to four are informed only about departmental plans, and four are not involved or informed.

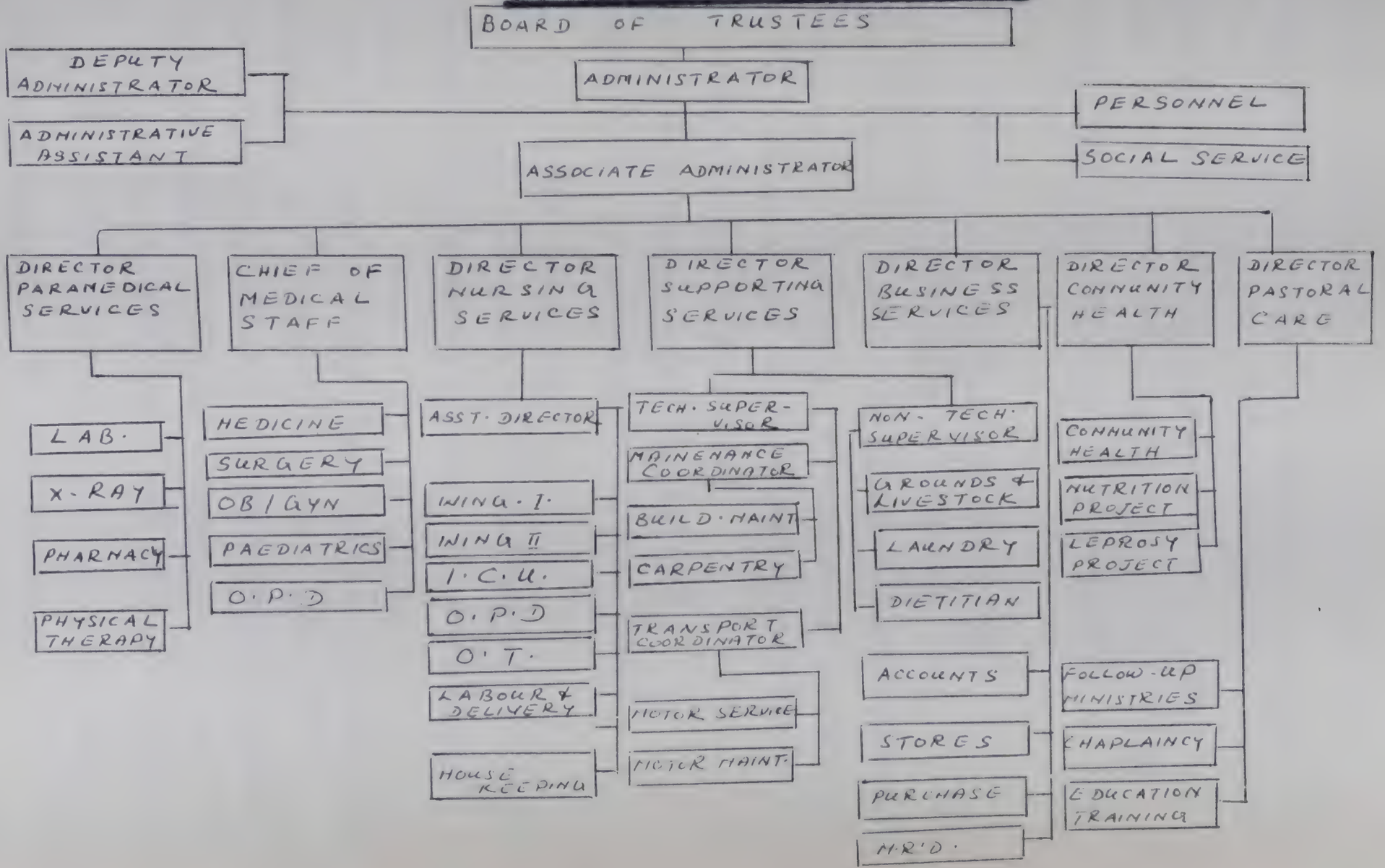
HOSPITAL 'C'

A) BACKGROUND:- Hospital C was started as a 80 bed unit in 1973, present bed strength is 100. It has got a community health programme related to maternal and child health, nutrition and leprosy. Many of the speciality services are offered. The staff strength is 223.

B) ORGANIZATION STRUCTURE:- The organization structure

FIGURE - VI

ORGANIZATION CHART OF HOSPITAL 'C'



is as shown in figure V. Much information could not be obtained about information flow according to the structure, as the administrator could not be interviewed in person for certain reasons. However, judging from the information received by the departmental heads, it can be concluded that there is better information flow in Hospital 'C' than in 'A' & 'B'.

C) ANALYSIS AND FINDING OF QUESTIONNAIRE:-

1) INFORMATION TO TOP ADMINISTRATOR:- As the administrator was not available to answer the questionnaire, of for personal interview, no information could be gathered, as to the ways and degree to which the administrator is kept informed, and keeps informing.

2) INFORMATION TO DEPARTMENTAL HEADS:-

(The sample size is 12 (100%) departmental heads)

a) From Top Administrator:-

i) Policy, Procedure, and standards:- Majority of the respondents (10) are well informed, and two are somewhat informed.

ii) Staffing:- The staffing pattern, and selection are decided on by the combined effort of administrator and departmental heads, according to nine to twelve respondents, by the departmental head alone according to one, one thinks it is by the administrator alone, and one is indifferent.

Eight to ten respondents are of the opinion that the departmental heads deal with job description, orientation,

and performance appraisal. Two believe that administrator alone deals with the same, and one is of the opinion that there is no clear procedure.

Eight of the respondents are well informed of the promotional policies, two are informed to some extent, one is not at all informed, and one is indifferent.

Almost all the respondents (11) say that departmental heads do the job analysis, and administrator approves, and one is indifferent.

Disciplinary action is initiated by six of the respondents, according to three administrator does it, and these are indifferent.

iii) Equipment, facilities, and supplies:- In nine departments, essential equipments are modern and up-to-date, one says that everything is old fashioned, and one is indifferent.

Two departments lack essential equipments, and administrator is aware of it. Necessary and additional equipments and facilities, can be suggested by departmental heads according to nine, two have no say in the same, and one is indifferent.

Nine departments get all routine supplies in time, two departments only sometimes, and one never in time. Non routine supplies can be got as and when needed according to five respondents, six of the respondents are of the

opinion, that there is no organized arrangement, and one is indifferent. Information about shortage of supply, price rise, and procurementa1 difficulties are informed well in advance according to six to seven respondents, four to five are informed only Sometimes, and one is indifferent.

iv) Planning:- Participation in budget making, departmental planning, and departmental goal setting are well informed and involved according to majority (6-11), one to six are only informed about changed plans, and two are indifferent.

All respondents are informed about the standards and areas needing improvement in quality.

v) Performance of the department:- Feedback on functioning , financial data, quality of service, and on the whole running of the department are received by five to eleven respondents, one to six get only once in a way, and one to three are indifferent.

b) From Supervisors:- Three to six are of the opinion that the daily work plan or changes in the same are done by departmental head and supervisor together, three to six are informed about the plans or changes in them, two are never informed, and one is indifferent.

Seven respondents are well informed of the grievance of personnel, according to two, it goes to administrator straight, two are of the opinion that there is no grievance procedure, and one is indifferent.

Work and work related problems are well informed in time to majority (8-9), two to three are informed to an extent, and one is indifferent.

Information about leave taken, and staff sick are informed, and has to go through departmental heads according to majority (11), and one is indifferent.

Six departmental heads are well informed of the family problems of their staff, five receive some information, and one is indifferent.

Seven respondents receive regular work report or statistics, three when they need, and two are indifferent.

c) Interdepartmental information:- Seven departments are well informed, three to an extent, one does not receive much information, and one is indifferent.

d) Future plans:- Three to seven respondents are involved, and informed about future plans, according to two to six, administrator makes and informs, two do not get any satisfactory information, and one is indifferent.

COMPARRTIVE ANALYSIS

A) HISTORY AND ORGANIZATION:- All three hospitals under study, started in response to the felt need of the community. The organizational chart of Hospital 'A' does not depict the place Governing Board has to hold, all the other departments are shown. The organizational chart of Hospital 'B' does not include many departments. In 'A' and 'B', the information does not flow according to organization structure. From the information obtained from departmental heads, the MIS in Hospital 'C' is better compared to 'A' and 'B'.

B) INFORMATION TO TOP ADMINISTRATORS:-

1) ASSESSMENT OF OPERATIONAL CONTROL OR PRODUCTIVITY:-

a) Patient and Service information:- The administrator of Hospital 'B' receives more daily information on patients while 'A' does not receive any. On a monthly basis 'A' receives a discharge analysis which 'B' does not have. 'A' and 'B' do not receive any monthly information about critically ill patients, or number of emergency operations. 'B' receives an annual work statistics, while 'A' does not receive any, nor projection of service for the coming year.

b) Work report:- 'A' and 'B' do not receive any daily work report of laboratory, x-ray, number of operations, deliveries, prescription to pharmacy, or number of out-patients. No weekly or monthly information about pharmacy and stores

purchase, except for major items. 'A' receives the information from discharge analysis of monthly statistics, which 'B' does not receive. No work report is received from supportive or paramedical services on a monthly or quarterly basis. 'A' receives an annual work report on medical, paramedical, nursing, and supportive service, which 'B' does not receive.

c) Utilization of facilities: 'A' does not receive any information on daily census, or daily work report on laboratory, x-ray, number of operations, deliveries, and prescription to pharmacy, while 'B' receives only daily census. No work report of supportive or paramedical services are received.

2) RESOURCE MANAGEMENT:-

a) Cash and Bank (finance):- 'A' has no daily information on cash and bank position, while 'B' has. 'A' and 'B' do not have any information about average income or expense per day, or per patient, neither about cost of free care on a monthly or quarterly basis. No half yearly balance sheet or cost break up in 'A', while 'B' receives a half yearly balance sheet, but no analysis is received. No computation or information about income, expense per day or per patient hospitalization in both.

'A' and 'B' receive annual comparative balance sheet. Capital items to be replaced for the coming year are informed.

b) Stores and purchase:- No weekly information about stores and pharmacy purchase and issue, except of major items in 'A' and 'B', also no quarterly information about inventory. In 'A' and 'B', pharmacy purchase, sale and stock for the month are informed. In 'B' stores purchase, issue, list of capital equipment purchase are informed on a monthly basis.

c) Accounts receivable and payable are not informed in 'B', while 'A' receives information.

d) Personnel:- No information at all is received about personnel joining, leaving, number of grievances, nor any other issue related to staff in 'A' and 'B'. No list is draun out for those who are resigning or retiring. 'A' does not receive any information of notification of staff position to employment exchange, while 'B' has.

3) QUALITY ASSURANCE (REVIEW):-

a) Medical care:- 'A' and 'B' do not have any monthly information about death review, infection review, stillbirth rate, number of caesareans, tissue committee report, or utilization review. No performance review is done. 'A' receives an annual report on the above, while 'B' does not.

b) Nursing Care:- No regular information is received about operation, deliveries, number of critically ill patients, or number of emergency operations, in 'A' and 'B'. Unusual incidents, death, occupancy of I.C.U., and C.C.U., on a monthly basis are received in 'A', while in 'B' it is not

informed. No performance review is done in 'A' and 'B'.

c) Diagnostic Service:- Information about number of laboratory tests with break up, or information about x-rays with break up, and comparative statistics are not received in 'A' and 'B', no performance review either.

4) PLANNING:- In 'A' and 'B' no major plans for the next quarter are received in time. No drawing out a list of staff resigning and retiring during the coming year, is done. No annual work statistics or projection of service are received. For equipment and facility planning too, no adequate data about the actual output or projected output of service, is available. Suggestions and recommendations gathered from departmental, and committee meetings are not there.

The whole planning is based on information received on capital items to be replaced for the current year, and also from the drawing of an annual budget.

C) INFORMATION TO DEPARTMENTAL HEADS:-

1) FROM TOP ADMINISTRATORS:-

a) Policy, procedure, and standards:- In hospitals 'A' and 'B', a good number is well informed about policy, procedure, and standards, and in 'C' all most all are well informed. Still in 'A' and 'B' a sizable number is only somewhat informed, and a small minority remain uninformed or not bothered.

b) Staffing:- Majority respondents in 'B' and 'C' agree that staffing pattern, and selection are dealt with by administrator and departmental heads together, while in 'A' majority opinion is that administrator alone deals with the same. In 'A', the remaining is divided between departmental heads with administrator, and by departmental head alone almost equally. Administrator alone decides the staffing pattern and selection in rare cases in 'B' and 'C'.

Job description, performance appraisal, etc., are dealt with by departmental heads to a great extent in 'A', 'B', and 'C', maximum being in 'C'. A small group in all three believe that administrator alone does it, and a medium size group says that there is no clear procedures at all.

Promotion policy is informed to majority of departmental heads in 'C', majority in 'B' are somewhat aware, while in 'A', majority are not aware. Less than 45% are aware to some extent in 'A', and in 'C' two are aware to some extent only.

In Hospital 'C', almost all the departmental heads do the job analysis, and administrator approves, in 'A' majority, and in 'B' 50% are done by departmental heads, and approved by administrator. In 'A' and 'B' a small group joins with the administrator and does job analysis, very few say that administrator alone does it, and in each, there is at least one respondent who is indifferent.

In 'A' and 'B', majority of the disciplinary action are initiated by administrator, and in 'C' 50% is initiated by departmental heads, and 25% by administrator. In both 'A' and 'B', a few by departmental heads, and approved by administrator. In 'A' and 'B', a small group believes that there is no specific procedure at all. In 'B' and 'C', some departmental heads are indifferent.

c) Equipment, facilities, and supplies:- All three got the essential equipments, modern and up-to-date. A sizeable group in 'A', and one or two in 'B' and 'C', say that their departmental equipments are all old fashioned. One is indifferent to the same in all three hospitals. All three lack some essential equipments, and the administrators are aware of the same.

In 'A' and 'C', majority of the departmental heads can suggest for necessary equipments and additional facilities. In 'B', majority can ask for the same. In 'A', a very few have the freedom to ask for, while a small group in 'B' and 'C' have no say in the same, and one is indifferent in 'A' and 'C'.

Majority of the departments in 'A' and 'C' get routine supplies in time, while in 'B' only a few departments get ensured the same. In 'B' 50% of departments get supplies only sometimes in time, the same is true for some departments in 'A' and 'C'. Also, there are one or two departments which never get in time in all the three. In all hospitlas, 45-50%

of the departments have arrangement for nonroutine supplies, almost equal number feel that the arrangement is not organized. In 'B', one department has no arrangement at all, and at least one is indifferent. Price rise and shortage of supplies are informed to 45-50% of departmental heads in all three, almost equal number is informed only about major items, or only once in a way. In 'A' and 'B', a few departments are never informed. In all three, one to two departmental heads are indifferent.

d) Planning:- All aspects of planning or changes in planning are done by administrator and departmental heads in 'B' and 'C' according to 50% opinion. But in 'A', majority are informed only the made or changed plans. In 'B' and 'C' a good number is only informed about changes. A sizeable groupin 'A' and a small group in 'B', are not at all involved or informed about any plans or changes. In 'A' and 'C', at least one is indifferent. In hospital 'C', all departmental heads are well informed about the standards and areas needing improvement, in 'A' 50% are well informed, while in 'B', 50% and in 'A', 30% do not get any areas specified. In 'B' 40% feel that the areas and standards are clearly defined and specified. In 'A', three are indifferent to the same.

e) Performance:- In hospital 'C', 50% receive regular feedback, while majority in 'A' and 'B', and also a few in 'C' receive only when something goes wrong. Very few

departments receive regular feedback in 'A' and 'B'. A sizeable group in 'A' and a small group in 'B' never receive any feedback. One to three are indifferent in 'A' and 'C'.

2) FROM SUPERVISOR:- In Hospital 'A', 45% of departmental heads are indifferent to any information about work plans or changes in the same, while one tactue are indifferent in 'B' and 'C'. Forty per cent are somewhat informed in all three. A good number in 'C' and one departmental head in 'A' join together with supervisor for planning and making changes. In 'B' and 'C', one to two are never informed.

In Hospital 'B', 40% of the departmental heads are of the opinion that they do not have any grievance procedure, and two respondents from 'A' and 'C' are of the same opinion. In 'C', 60% and in 'A', 40% are well informed of the grievance procedure, and action is taken. Thirty per cent in 'B', a small group in 'A', and a smaller group in 'C' are of the opinion, that all grievance procedure go to the administrator. In 'A' and 'C', three and one respondents respectively are indifferent as to having any procedure.

In Hospital 'C', work and work related problems are well informed to departmental heads. In Hospital 'A' 40% are well informed, in 'B' only a few are well informed. In 'B' it is somewhat informed to 45% of departmental heads, in 'A' and 'C', a small group is of the opinion that they are only somewhat informed. A sizeable group is quite

indifferent in 'A' and one in 'C'. 'B' and 'A' got atleast one to three departmental heads who are not at all informed.

In all three hospitals, majority are of the opinion that leave taken, and staff falling sick have to go through the departmental heads. One to three departments only receive information about leave granted in 'A' and 'B', and one to two departmental heads do not get any information in 'A' and 'B'. In 'C' one is indifferent.

In Hospital 'C' 50%, in 'A' 40% are aware of the family problems of staff. In 'C' 40%, in 'A' 35%, and in 'B' 30% of departmental heads are only somewhat informed about the same, two to three are not at all aware in all three, a small group is indifferent in 'B', and one each in 'A' and 'C'.

More than 50% of C, and only very few in 'A' and 'B' receive work statistics, or reports on a daily basis. Four each in 'A', 'B' and three in 'C' receive only when they ask for, four in 'A', and three in 'B' receive just once in a way, also a small group is indifferent in all three.

3) INTERDEPARTMENTALINFORMATION:- In Hospitals 'B' and 'C', more than 50% of departmental heads are of the opinion that there is good, interdepartmental information, while in 'A' only 20% are well informed. In 'A', 60% and in 'C' 25% are only somewhat informed. A small group in 'A' and 'B' do not receive any information, and one is indifferent in 'C'.

4) FUTURE PLANS:- About half of the respondents are of the opinion that they are involved and informed in all three hospitals. A small group from each do not receive any, one is indifferent in 'A' and 'C'.

FINDINGS

A) INFORMATION TO TOP ADMINISTRATORS:- From the comparative analysis, we can see that in Hospitals 'A' and 'B', top administrators function under a dearth of information.

In operational control, only very minimum information is received. A major part of patient and service information, work report, and utilization of facility, is lacking. Only a few scattered informations are received.

For resource managment too, there is no adequate information. Daily Bank and cash position is known to one, and to the other it is not. Information in all other areas connected to finance, is not there except in the form of half yearly, and annual balance sheet.

From stores and purchase too no adequate information except with regard to major purchase.

Personnel is another area with no information for administrative decision taking.

Accounts receivable, and payable are informed.

In the area of quality assurance too, no regular information, except in one on medical care, on an annual basis.

In nursing care too, practically no information, except some monthly information or some oral informations.

In diagnostic service too, practically no informations like laboratory tests and x-rays with their break ups are

received by the administrators. All planning is done without any adequate data to support it, except a list of capital items to be replaced.

For operational control, quality assurance, resource management, decision taking, and planning, administrators do not get sufficient information. It can be concluded that much of the administrative decisions and planning, is done as a crisis management, rather than on an incremental or innovative scale, as stated in the hypothesis.

B) INFORMATION TO DEPARTMENTAL HEADS:- From the analysis of the information reaching the departmental heads, it can be concluded that policy, procedure, and standards are rather well informed with a varying scale of scope for improvement.

In dealing with staffing pattern, and selection, information to, and involvement of departmental heads are there in two hospitals, but in one it is more a one man basis business. Improvement in this area is of vital importance.

In all three hospitals, job description, and performance appraisal are dealt with by departmental heads to an extent but still there has to be more information and involvement from different departmental heads.

Promotion policy is an area which needs immediate attention in all three hospitals, though it is somewhat satisfactory in one. Job analysis too is not satisfactorily

done except in one hospital. On the whole, majority of disciplinary action is taken by administrator, there has to be more involvement of departmental heads.

Equipment, facilities, and supplies are satisfactorily supplied, though there is need for updating and modernisation; some essential equipments are lacking in all. Routine supplies are not always ensured in time. Price rise, shortage of supplies, and procurementa1 difficulties are not informed in time.

Planning is another area in which departmental heads have to be better involved, and informed; though it is done to an extent now. Information on specified areas needing better standard or quality has to be informed, which is lacking now. Information on feedback needs immediate attention, as only one hospital has got at least 50% departmental heads receiving regular feedback.

Information received from supervisors too is not sufficient in majority hospitals, for the departmental heads to functionsefficiently. Grievance procedure is not well established in any, though some measure is taken. Work, and work related problems need to be well informed, as the existing situation is not satisfactory except in one. Work and work statistics are not informed in time.

Interdepartmental communication, though existing, needs improvement. Involvement and information about future plans are not well established.

This analysis brings me to the conclusion, that information system to the departmental heads are far from being satisfactory. Departmental heads, as managers, are just functioning, but they do not get the necessary information in time, and their decisions and planning are just routine, rather than based on adequate information or data.

CONSLUSIONS

Due to time constraints, and limited number of hospital administrators, and departmental heads interviewed, it is difficult to arrive at a definite conclusion. But from the limited study I have made, it can be concluded that MIS in our institutions, as it exists today, is not well established, not based on specific institutional needs, managers are not aware of the need for information, nor specific to what kind they need, and to what extent.

As seen in the preceeding pages, the importance of MIS for decision making, and better management cannot be overemphasized. Without a proper information system, the administrator runs the risk of creating disorder and confusion in the organization. But, the presence of a good information system by itself is no guarentee for good administration. Information reduces uncertainty, helps in decision making. Managers have to try to decrease disorder and promote growth with the gift of information. Accurate information is needed to keep the organization going. Information system that optimises the time, money, and energy should be developed in our hospitals which run under a dearth of resources of all sorts. Every manager should be able to develop the information system that is tailored to the needs of the institution, it is true, but also it will be advisable to keep a standard accepted generally, so that when an integrated network of information

can and need be implemented, the organization will be prepared for the same.

The analysis of MIS in various institutions has shown that institutions are running for years together, without developing a proper MIS. Top Managers complain that they as managers suffer from lack of information in one area or other, also they admit that the managers, departmental heads and staff at various levels complain that they do not get sufficient information from those above them as top administrators. Hence it is an accepted fact that flow of information is not organized or adequate in majority of our institutions. May be a few organizations are better of than the others. Information is knowledge, it has to be generated and used intelligently, carefully and wisely. Commonsense and intelligent anticipation, coupled with a logical and scientific approach, have to serve as the basis for information. Managers should handle information as a tool, and not as his master.

In a sizeable number of health care institutions, the process of making decision, is sporadic and ad hoc. Lack of adequate information at various levels and stages of making decisions, is the prime cause of such ad hocism. If we cannot replace the sporadic, ad hoc system of decision making, with planned system of making decisions, the progress and development of health care institutions can be very much hampered.

Managers at all level suffer at one time or other due to lack of information which satisfies time, quality, and quantity. Confronted as we are with such a major crisis situation, it is high time that all health care institutions start a designed, standard MIS to serve their needs at various levels. Establishing and putting them little by little on a right footing, a day can come, when there can be an integrated network of MIS on a national level. It will be possible only if each institution realizes the need, and take initiative. Let us start ourselves, for somewhere, someone has to take a bold step, as far as our country and our institutions are concerned.

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APPENDIX

A) ANALYTICAL TABLE DERIVED FROM QUESTIONNAIRE

ANALYSIS OF DEPARTMENTAL HEADS:-

1) FROM TOP ADMINISTRATORS:-

a) Policy, procedure, and Standards:-

HOSPITAL 'A'					HOSPITAL 'B'					HOSPITAL 'C'				
No.	Indifferent	1	2	3 Total	Indiff-erent	1	2	3 Total		Indiff-erent	1	2	3 Total	
1			6	8 14		5	6	11			2	10	12	
2			6	8 14		6	5	11			2	10	12	
3		1	6	7 14		9	2	11			2	10	12	
4		1	3	3 7 14		1	6	4 11		1	1	2	9	12
5		1	1	3 9 14		1	3	7 11		1	1	10	12	
6		1	3	4 6 14		1	2	8 11		1	4	7	12	

b) Staff:-

1		1	6	4 3 14		2	1	8 11		1	1	1	9	12
2			4	4 6 14		2		9 11					12	12
3			3	8 3 14		3	4	4 11			2	10	12	
4		2	5	5 2 14		3	3	5 11		1	1	2	8	12
5		1	7	6 14		4	7	11		1	1	2	8	12
6		1	2	3 8 14	2	1	3	5 11		1			11	12
7			3	3 8 14	1	2	5	3 11		3		3	6	12

c) Equipment, facility, and supplies:-

	Hospital 'A'					Hospital 'B'					Hospital 'C'				
No.	Indiff-erent	1	2	3	Total	Indiff-erent	1	2	3	Total	Indiff-erent	1	2	3	Total
1	1		5	8	14			2	8	11	2		1	9	12
2a	No-5			Yes - 6		No-5,			Yes-4		No-10,			Yes-2	
3	1		2	11	14			3	8	11	1		2	9	12
4	1		2	11	14			3	8	11	1		2	9	12
5			2	4	8 14			1	6	4 11			1	2	9 12
6	3			5	6 14	1		1	5	4 11	1			6	5 12
7	1		1	6	6 14			1	5	5 11			1	5	6 12
8	3		4	3	4 14			5	6	11	1			4	7 12
9	2		2	7	3 14	1		2	4	4 11	1			5	6 12

d) Planning:

1	2		8	4	14				2	9	11			2	10 12
2	3		1	5	5 14				2	9	11			1	11 12
3	1		1	8	4 14				2	9	11			6	6 12
4	2		3	6	3 14			3	3	5	11	2			10 12
5	2		4	7	1 14			2	3	6	11			6	6 12
6	3		1	3	7 14				6	5	11				12 12

a) Performance of department:-

HOSPITAL 'A'						HOSPITAL ' B'						HOSPITAL 'C'					
No.	Indiff-erent	1	2	3	Total	Indiff-erent	1	2	3	Total		Indiff-erent	1	2	3	Total	
1	1	2	7	4	14			7	4	11		1		6	5	12	
2		6	6	2	14		2	7	2	11		1		1	10	12	
3	1	2	7	4	14		1	7	3	11		1			11	12	
4	2	3	6	3	14		1	7	3	11		3		3	6	12	
5	1	7	4	2	14		3	3	5	11		3		4	5	12	

2) FROM SUPERVISORS:-

1	6	1	6	1	14	2	3	4	2	11		1	2	3	6	12	
2	5	1	5	3	14		2	7	2	11		1	2	6	3	12	
3	3	2	3	6	14		5	4	2	11		1	2	2	7	12	
4	4	1	3	6	14		3	5	3	11		1		3	8	12	
5	3	1	4	6	14		1	5	5	11		1		2	9	12	
6	1	1	1	14	14		1	1	9	11		1			11	12	
7		2	3	9	14			4	7	11		1			11	12	
8	1	2	5	6	14		1	6	4	11		1		5	6	12	
9	4	4	4	2	14	3	3	4	1	11		2		3	7	12	

3) INTERDEPARTMENTAL INFORMATION:-

1		3	8	3	14		4	1	6	11		1	1	3	3	12	

4) FUTURE PLAN:-

1		4	4	6	14		4	1	6	11		3		2	7	12	
2	1	3	9	1	14			4	7	11		1	2	6	3	12	

B) QUESTIONNAIRE USED FOR ANALYTICAL STUDY ON MANAGEMENT INFORMATION SYSTEM

Top Administrator

What are the informations you receive on a

Daily basis?

Weekly?

Monthly?

Quarterly?

Half yearly?

Annual?

What are the informations you give out on a

Daily basis?

Weekly?

Monthly?

Quarterly?

Half yearly?

Annual?

Daily Informations-

Do you receive the following informations daily?

No. of admissions

No. of discharges

No. of deaths

Census

Report of unusual incidents

V.I.P. Admissions

Notifiable diseases

Staff sick

Iatrogenic complications leading to death

M.L.C. Cases

Daily work report

- No. of lab tests
- No. of X-rays
- No. of ppeeations
- No. of deliveries
- No. of prescriptions to pharmacy
- No. of outpatients

Daily bank position

Daily Income summary

Daily expense

Weekely informations:- Do you receive statements of weekly

Pharmacy

- purchase?
- Issue?
- Major purchase?

Stores

- Purchase?
- Issue?
- Major purchase?

Monthly Informations:-

Are you given information on a monthly basis on

Work statistics derived from discharge analysis?

- Average length of stay
- Occupancy rate
- Departmental statistics

- Total patient days
- Admissions
- Discharges
- Death
- Census
- O.P.D. visits for the month

Medical Care?

- death review
- Infection review
- Still birth rate
- Infant mortality rate
- No. of Caesarean cases
- Tissue Committee report
- Medical Audit report
- Clinical conferences done last month - planned for next month
- Utilization review

Nursing care review?

- No. of critically ill patients
- unusual incidents, deaths
- No. of emergency operations
- Occupancy of ICU/CCU

Paramedical services?

Pharmacy

- Purchase for the month
- Sale, Stock
- No. of prescriptions, I.P. and O.P.

Laboratory:?

- Total number of lab tests with break ups
- Emergency Tests
- Outside specimen coming in
- Specimen going out if any
- Comparative statistics- this year, last year, this month, last month.

X-Ray?

Total number of X-rays

- Routine, special
- Emergency X-rays
- Outside referrals
- Comperative statistics.

Supportive Departments?

Stores - Purchase - Issue - Inventory balance - List of Capital Equipment purchased.

Dietary: Total number of meals prepared and cost/meal

Laundry and Linen: Kg. of linen washed
- cost per Kg.
- Major purchase oflinen

C.S.S.D. - Amount of work done
- Packs of trays sterilized

Maintenance: Work done last month
Planned for current month

Personnel: How many joined?
How many left?

No. of grievances?

Any other Issue related to staff?

Finance?

- Monthly financial report with departmental break up in budget format
- Average income per day
- Average expense per day
- O.P.D. earning/visit
- O.P.D. expense/visit
- I.P. earning/patient day
- I.P. expense/patient day

Expense cars/patient day

Quarterly Informations

Do you receive:

Income and expenditure and budget comparision and analysis?

Staff Information to employment exchange?

Review of performance of all departments?

Report of departmental meetings?

Report of committee meetings?

Inventory?

Account receivable?

Account payable?

Major construction/Renovation work of report if any?

All major plans for next quarter?

- Camps, seminars, courses, etc.

If there is any deficiency?

- budget, quality of service, etc, then plan for corrective

actions.

Half-yearly Report: Do you receive

Revenue/expense summary with comparative analysis?

Balance sheet?

O.P.D. earning per patient day?

O.P.D. expense?

I.P. earning per patient day?

I.P. expense per patient day?

Loss or gain/patient day?

Cost analysis?

Balance sheet analysis for?

- Current ratio
- Working capital
- Inventory turnover
- Collection period
- Payable outstanding

Checking of inventory

Report for funding agency

Annual Informations: Do you receive

Comparative balance sheet?

Vertical and Horizontal analysis of departmental income and expense?

O.P.D. income and expense per visit?

Income, expense per patient day?

Loss or gain per patient day?

Average income/expense per day?

Cost analysis broken down into units like

- Cost of food per meal?
- Cost of Kg. of linen washed?

- Cost of operation theatre per hour?
- Cost of each unit of service and supply?

Cost per patient for each hospitalization?

- general/semiprivate/private

Financial ratio Analysis?

Salary and wages content

- Doctors salary per I.P. day?
- Nursing salary per I.P. day?
- Administrative service salary per I.P. day?

Capital items to be replaced for the coming year?

Work load analysis when additional staff is asked for?

List of staff resigning after completion of service, for better job opportunities, termination, etc.?

Annual work statistics?

Projection of services for the coming year?

Report of working of

- Medical care?
- Paramedical care?
- Nursing care?
- Supportive services?

(Report from each department containing the work statistics for the year, grouth or decline compared to previous year, projected budget and personnel with justification, projected service statistics, plan for the future)

Do you give informations

To the Governing Board

Reports

- About quality of Medical Care?
- About Personnel?
- About Finance?
- Administrative reports?
- General Information?
- Opinions and attitudes in general and about Governing Board meetings, you receive from staff and departmental heads?
- Legislation and legal matters?
- Performance in general?
- Progress in existing plans (renovation, construction,etc)?

Plans - Suggestions and Recommendations gathered from departmental and Committee meetings?

- Reaction to Governing Board information as expressed by Departmental heads and other staff?

To the medical staff

- Directives?
- Plans?
- Governing Board's appointment orders?
- Contract terms?
- Policies?
- Change of policies if any?
- Administrative Report?
- Feedback about quality?
- Approval?

To Other staff?

- Directives
- standards
- Plans
- Policies

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- Job Description
- Schedules
- Audit - Financial and Management Statistical sampling of reports
- Cost finding
- Cost control
- Rate structure
- Performance appraisal
- Report forms
- Conducts personnel and patients opinion survey
- Arranges educational programmes
- Budget control
- Committee meetings
- Feed back
- Approval

To Community:?

- Working of the Institution, financial conditions, future problems, change in service.
- Arrangement for meeting relatives of patients who want to meet the Administrator.
- Obliging to talk at public gatherings
- Rapport with Police, Fire Department.

Departmental Heads:-

1) As Departmental heads the information one needs from the administrator:-

a) Policy, Procedure, and Standards:-

1. To what extent has the Administrator made known the policies and programmes to you as a departmental head?

   Not at all | Sometimes | All policies and programmes are communicated

2. To what extent are you made aware of the change in policy and Procedure if any?

   Never | Sometimes | Always

3. Are existing policies, procedures or changes there of explained in greater detail and understood?

   Not at all | Somewhat clear | Very well explained

4. Are you informed about the standard of departmental performance expected by the Administrator clearly?

   No standard set | Somewhat clear | Very clear

5. Is the schedule of changes made known to tou?

   Not at all | For some items | For all services

6. Is the change in schedule indicated by you or informed to you after finalisation?

   Initiated by administrator | Initiated by Departmental head | Both together

b) Staff:-

1. Who decides the staffing pattern of your department?

   Administrator alone | Departmental head alone | Administrator and Departmental head

2. Who is involved in the selection of staff?

Administrator	Departmental Head	Combined effort of Administrator and departmental head

3. Who deals with job description and orientation when a new staff joins?

Not clearly defined	Administrator	Departmental head

4. Who is responsible for performance appraisal, promotion, etc?

No clear procedure	Administrator	Departmental head

5. Are you made aware of the promotion policies?

Not at all	To some extent	Well informed

6. Who does the job analysis of the departmental staff?

Administrator	Departmental head and administrator together	Departmental head does and Administrator approves

7. Who initiates the disciplinary action?

No specific Procedure	Administrator alone	Departmental head initiates

c) Equipment, facilities and supplies:-

1. To what extent the departmental equipment and facilities are modern and uptodate?

All old fashioned	Essential equipments are modern and uptodate	All uptodate and modern equipments

2. - Is there any essential equipment lacking?

- Is the top administrator aware of it?

3. How do you get necessary equipments?

Administrator alone decides	You can ask for giving reasons	You can suggest and it will be considered

4. As a departmental head do you have any say in deciding about additional facilities of the department?

   You have no say You can ask for You can suggest

5. To what extent timely availability of routine supplies are are ensured?

   Never in time Sometimes Always in time

6. To what extent provisions is made for procurement of nonroutine supplies?

   No arrangement Arrangement is there, but not organised flexibility is possible

7. Are you informed if there is going to be shortage of supplies?

   Not at all Only when the need arise Well in advance

8. To what extent are you informed of the price rise in suplies?

   Not informed Only for major items Receive adequate information

9. Are you informed about the procurementa1 difficulty?

   Never Sometimes Well in time to prevent paralysis of work

c) Planning:-

1. To what extent are you informed of the departmental budget and participation in budget making?

   Not at all Administrator makes and gives information Active involvement of departments head

2. To what extent are you involved in departmental plan for development?

   Administrator plans Rarely involved Combined effort of administrator and departmental head

3. Are you well informed about the changes to be implemented in the department?

Not informed	Changed plans are informed	Administrator and departmental head together plans

4. Are you involved in work planning and deciding about departmental goal?

Not involved	Administrator decides and informs	Both together decides and formulates

5. To what extent you are informed about the total plan, changes in policies and programmes of the hospital?

Not at all	To an extent	Well informed

6. To what extent the Administrator communicates to you about the need for improvement in quality?

Never	Does not specify the area	Areas and standards clearly defined

a) Performance of the Department:-

1. To what extent the Administrator gives you a feedback on the functioning of the department?

Never	Only when something goes wrong	Regularly

2. Do you receive from the Administrator his opinion about the financial data - Income, expense, cost - regularly?

Not at all	Once in a wny	Periodically

3. What feedback you get abbut the quality of service you render?

No feed back	Areas needing improvement are pointed out	Positive and negative feed backs on a regular basis

4. What is the Administrative feed back on the report you present to the Administrator?

Too sketchy	Satisfactory	Precise and upto the requirement

5. To what extent do you receive regular feed back about the on the whole running of the department?

Only when something goes wrong	Once in a way	At regular intervals

II) INFORMATION received from the Supervisees:-

1. Does the supervisor provide you with a work plan on a day to day basis?

No information received	Once in a way	Well drawn out work plan

2. If the supervisor is following any change in work methodology, are you informed of the same?

Very little is informed	All changesare informed	All changes are planned together

3. To what extent are you informed about the grievance of personnel in the department?

No grievance procedure	Bypasses and goes to the Administrator	Well informed and action taken

4. To what extent are you informed about the day to day work problem?

Not aware of any problems	To an extent	All problems are informed in time

5. Are you informed about the work related problems?

Not at all	To an extent	Well informed

6. How well are you informed about the leave taken?

Personnel department alone grants leave	Administrator straight away grants leave	Departmental head has to be informed and all leave to be recommended

7. Are you informed about the staff falling sick?

No information is received	Some information is received	Compulsory notification to departmental head is a must and followed

8. Are you aware of the family problems of your departmental staff?

Not at all | To an extent | All are free and they discuss their problems

9. Do you receive a daily work report/statistics? number of lab tests, X-ray, daily admissions, discharges, etc?

Once in a way | When asked for | Regular and accurate

III) Interdepartmental Information:

1. Do you receive adequate information from other departments which are necessary for the functioning of your department?

Not much information | To an extent | Well informed

IV) Future Plan:

1. To what extent are you involved in making future plans?

Not at all | Administrator makes and informs | Plans are made with the combined effort of department and administrator

2. Are you informed about the future plans?

Not satisfactory | Only Departmental plans | On the whole plan and depattmental plans